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California's Computer Magazine

JULY 1988 • 45

FREE

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- ALDUS FREEHAND: PostScript And Color Graphics
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- STARTING THIS MONTH: The BMUG Report

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QUARTERDECK

President Therese Myers On DESQview, IBM, And OS/2

- Graphics For Lotus Freelance
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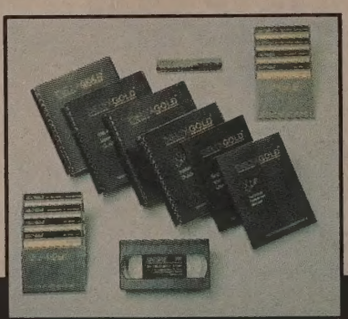
The fact is the Delta Gold Systems are the obvious choice for you.

Specifications of the Standard System

Model	Elite	Prestige	Premier
Microprocessor	• 8-bit Intel 8088 Turbo, 4.77 or 10 MHz	• 16-bit Intel 80286, 6 or 10 MHz	• 32-bit Intel 80386, 16 MHz
Co-processor	• Socket for 8087 match co-processor	• Socket for 80287 math co-processor	• Socket for 80387 math co-processor
Memory	• 512KB standard, socketed RAM (Zero Wait State), expandable to 768KB	• 512KB standard, expandable to 1 MB on motherboard	• 1MB standard on board RAM (Zero Wait States & fully utilized)
Storage Device	• One 5.25" 360K, half-height drive • Optional space for internal 3½" hard disk drive	• 5.25" half-height, 1.2MB drive • Space for 3 half-height storage devices • Optional space for internal 3.5" hard disk drive	• Standard 1.2 MB half-height drive • 40MB hard disk drive • Space for 5 half-height storage devices
Expansion Slots	• 4 expansion slots	• 8 expansion slots	• 8 expansion slots
Video Adapter	• Hercules equivalent, CGA, MGA, plantronics on motherboard	• MGA (Mono/color Hercules equivalent graphics card)	• EGA (enhanced graphics adapter card with Hercules capability)
Clock/Calendar	• Real time clock/calendar with battery back-up on motherboard	• Real time clock/calendar with battery back-up on motherboard	• Real time clock/calendar with battery back-up on motherboard
I/O Connections	• One serial communications port • One parallel port on motherboard	• 2 serial communications ports (RS-232C) • One parallel port	• 2 serial communications ports • One parallel printer port
Clicking Keyboard	• 84 key Selectric-style keyboard	• 101-key AT layout, Selectric-style	• 101 key AT layout, Selectric-style
Display Features	• 12" high resolution monochrome monitor with tilt swivel	• 12" high resolution monochrome monitor with tilt swivel	• 14" EGA color monitor with tilt swivel
Controller Board	• On motherboard	• Western Digital Winchester and floppy disk controller card	• Western Digital Winchester and floppy disk controller card



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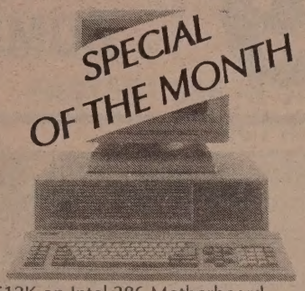

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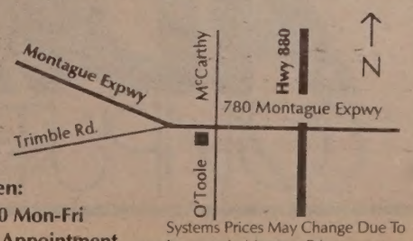

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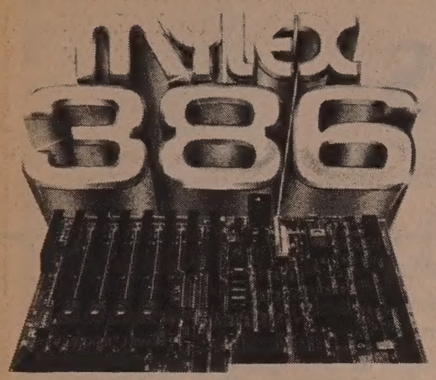

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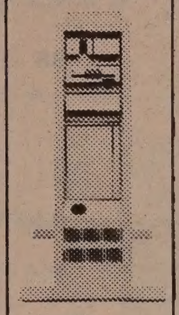

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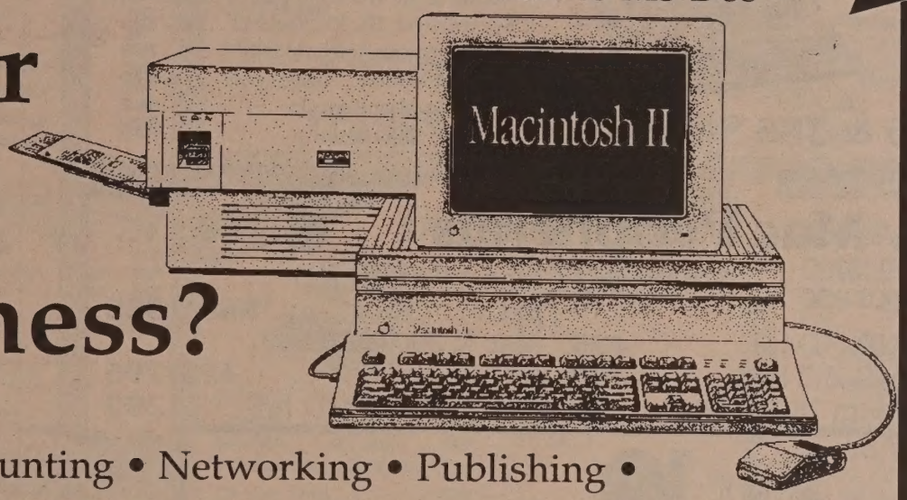

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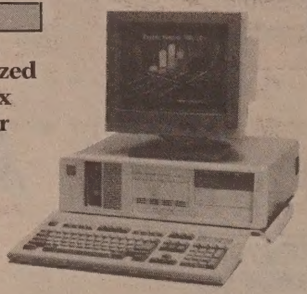

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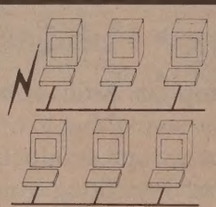

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CONTRIBUTING PHOTOGRAPHERS Ken James, Michael Jay, Pat Johnson, Jim Marshall, Ann Summa
EDITORIAL CONSULTANTS Don Hamilton, Pat Hamilton
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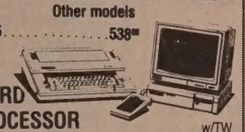

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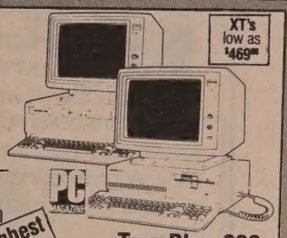

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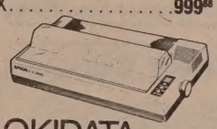

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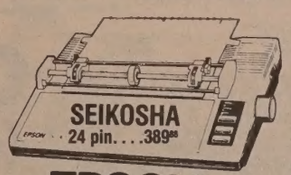

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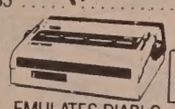

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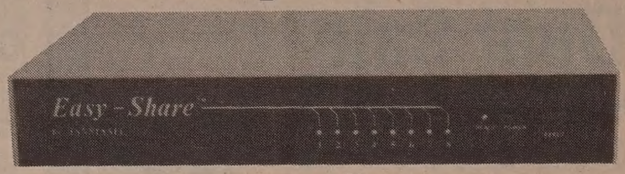

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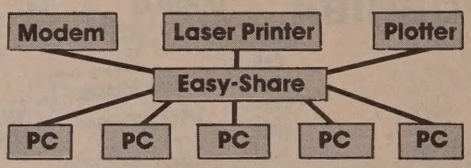

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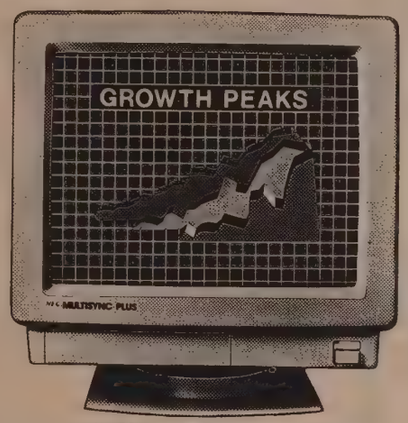

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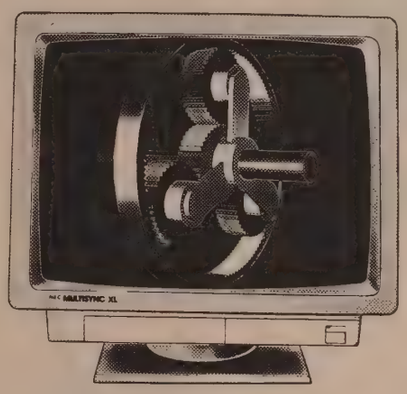

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June 20-24 SCO XENIX System Administration. Santa Cruz. The Santa Cruz Operation. Call (408) 425-7222.

June 23 How To Build Your Own XT/AT Compatible. Fort Mason Center. Walnut Creek classes also. Registration: (415) 284-1024.

June 25 Computer Swap. Santa Clara County Fairgrounds, San Jose. Computer Swap America. (415) 366-9162.

June 27 PS/2 Course. San Francisco. Contact Data-Tech Institute at (201) 478-5400.

June 29 Cybernetic Age Politics, Culture and Religion. Julia Morgan Theatre, Berkeley. High Frontiers Magazine. For further information call, 548-4114.

July 7 Time Line Workshop. Know How, Inc. San Francisco. Contact Sherri Davis, Symantec-Breakthrough Software, (415) 898-1919.

July 9 Computer Swap Meet. San Mateo County Fairgrounds. RK Productions. (800) 252-7927.

July 10-30 Future Fiction HyperCard Fiction Workshop CSU Summer Arts Course. Call (213) 590-5768 for information.

July 11-12 Computer Assisted Software Engineering. San Francisco. Association for Systems Management. Call Bernie Thiel, (216) 243-6900 for information.

July 13-15 C: A Guided Tour Intensive Three Day Seminar. Handlery Hotel, Union Square, San Francisco. Miller Freeman Publications. Contact Bill Rutledge (415) 397-1881.

July 15 Time Line Workshop (Transition to Version 3.0). Know How, Inc. San Francisco. Contact Sherri Davis, Symantec-Breakthrough Software, (415) 898-1919.

July 16 Techniques of Presentation Design Course. Computer Arts Inst. 310 Townsend St., San Francisco. Call CAI at (415) 546-5242 for registration.

July 18 Data Base Jamboree. dBase IV demo and presentation. San Francisco. San Francisco PC Users Group. Call (415) 621-2609 for details.

July 23-24 Time Line Workshop (Version 3.0). Know How, Inc. San Francisco. Contact Sherri Davis, Symantec-Breakthrough Software, (415) 898-1919.

July 25-27 Upgrade, Repair, Maintenance, Troubleshooting Of The IBM PC, XT, AT, PS/2 & Compatibles. San Jose. Personal Computer Group. Call (201) 377-7400 for registration.

July 26 SBT Introduction to dBASE IV Seminar. San Francisco. Contact SBT Corporation (415) 331-9900.

July 25-26 Four Short Courses On Systems Development: A PC Based Methodology. Sacramento. Contact TCA Training Institute at (408) 737-2665.

July 27 SBT Introduction to dBASE IV Seminar. San Jose. Contact SBT Corporation (415) 331-9900.

August 9-15 1st Computer Olympiad. Thinking

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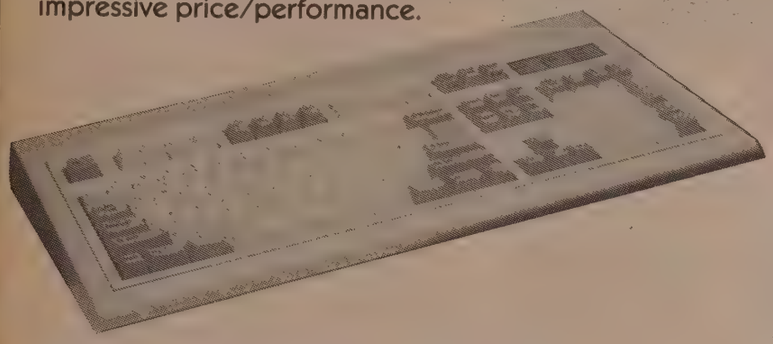

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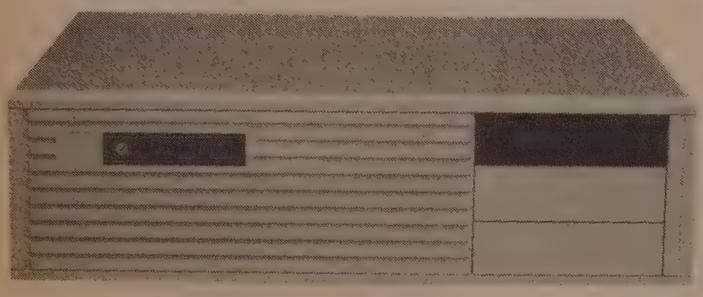

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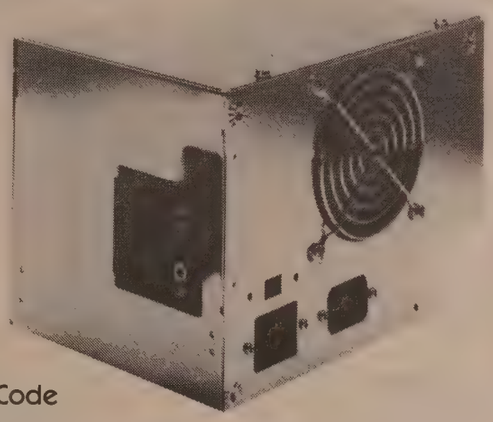

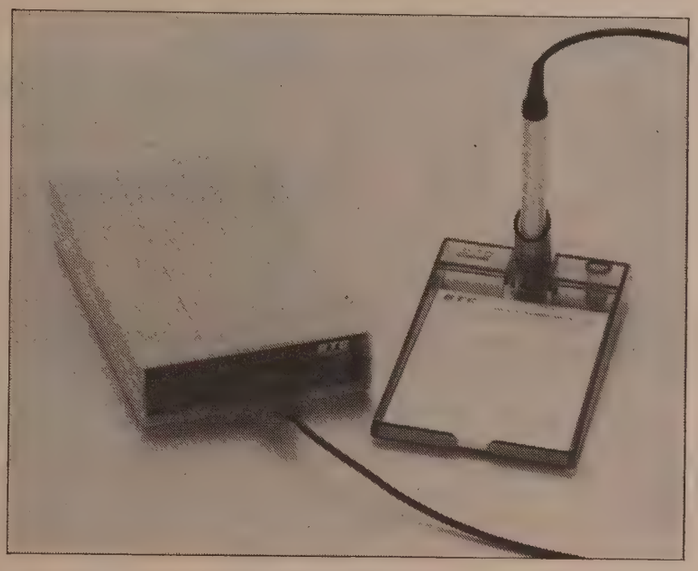

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August 19 Time Line Workshop (Transition to Version 3.0). Know How, Inc. San Francisco. Contact Sherri Davis, Symantec-Breakthrough Software, (415) 898-1919.

August 20 Computer Swap. Santa Clara County Fairgrounds, San Jose. Computer Swap America. (415) 366-9162.

August 21-26 Second Annual SCO Forum For Developers and Resellers. University of California, Santa Cruz. Santa Crúz Operation, (408) 425-7222.

August 22-24 Upgrade, Repair, Maintenance, Troubleshooting Of The IBM PC, XT, AT, PS/2 & Compatibles. Sacramento. Personal Computer Group. Call (201) 377-7400 for registration.

August 22-23 Four Short Courses On Systems Development: A PC Based Methodology. Sunnyvale. Contact TCA Training Institute at (408) 737-2665.

August 25-26 Time Line Workshop (Version 3.0). Know How, Inc. San Francisco. Contact Sherri Davis, Symantec-Breakthrough Software, (415) 898-1919.

August 29-30 Four Short Courses On Systems Development: A PC Based Methodology. San Francisco. Contact TCA Training Institute at (408) 737-2665.

September 8 Time Line Workshop (Version 2.0). Know How, Inc. San Francisco. Contact Sherri Davis, Symantec-Breakthrough Software, (415) 898-1919.

September 14-17 Seybold Desktop Publishing Conference. Santa Clara Convention Center. Seybold Seminars (213) 457-5850.

September 16 Time Line Workshop (Transition to Version 3.0). Know How, Inc. San Francisco. Contact Sherri Davis, Symantec-Breakthrough Software, (415) 898-1919.

September 22-23 Time Line Workshop (Version 3.0). Know How, Inc. San Francisco. Contact Sherri Davis, Symantec-Breakthrough Software, (415) 898-1919.

September 24 Computer Swap. Santa Clara County Fairgrounds, San Jose. Computer Swap America. (415) 366-9162.

October 1-4 Apple Expo. Paris, France. Apple Computer France. Free booths for selected US firms. Contact Philippe Haustete, 12, Avenue del'Oceanie, Zone d'Activites de Courtaboeuf, Boite Postale 131, 91944 Les Ulis Cedex, France.

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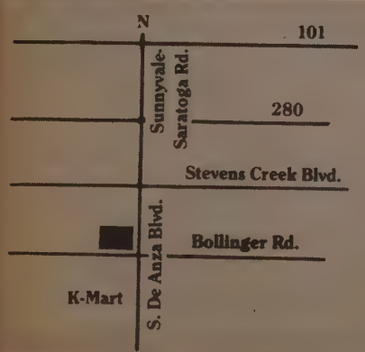

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By Paul Hoffman

U.S. To Sign Berne Convention: What It Means To Computer Software

Congress and the Senate are about to pass legislation causing the U.S. to join the Berne Convention, a treaty of all major world powers (other than the U.S., Russia, and China) covering copyright. All nations signing the treaty promise to give works of authorship certain minimum protections. The Berne Convention has been been in existence for over 100 years and is considered the cornerstone of much of Europe's and Asia's copyright laws. The U.S. has historically refused to sign it for two reasons: it states that the government cannot require registration for the copyright to take effect, and it gives copyright holders "moral rights" over their works.

Recently, most of the opposition to the Berne Convention based on the registration issue was dropped when the U.S. dropped its registration requirement. However, moral rights is still a sticky issue; if the treaty adoption bill is passed, both houses have agreed to take up restrictions on the moral rights as they apply to new works. The bill that has passed Congress and is likely to pass the Senate states that the new restrictions imposed by adopting the Berne Convention will only take effect for new works and will not apply retroactively to works already covered by current copyright law.

Since all computer software is currently covered by U.S. copyright law, the adoption of the Berne Convention could have profound effects on the American computer industry. Surprisingly, IBM was the only computer company to become active in the latest round of lobbying in Congress (although book and magazine publishers took up the slack in arguing both sides of the bill). IBM made adoption of the Berne Convention a major policy issue this year as a method for getting greater protection of its software. However, it is possible that software will be removed from American copyright law in the future, leaving educational, entertainment, and political works as the main items protected by copyright.

The Berne Convention requires that signatory countries:

- guarantee copyright protection for the life of the author plus 50 years
- forbid compulsory licensing of a copyright
- grant protection without requiring a copyright notice (the familiar ©), registration, or deposit of material
- protect the moral rights of authors (such as the right to prevent modifications to the work that degrade the work and reduce the author's integrity or the right to withdraw the work from circulation).

The moral rights section is certainly going to be hotly debated, especially with the advent of "colorization" of movies. As the U.S. defines which moral rights are protected in which circumstances, the inadequacies of copyright for computer software will become clearer. With the advent of "look-and-feel" copyright protection, many sections of the Berne Convention could be used to cripple competitors in the software market.

Software became protected under the copyright section of U.S. law without much consideration of the long-run ramifications. Certainly, there needed to be some protection against copying of software. Since the copyright code was already in place and had worked well to prevent unauthorized copying of books and movies, software fell under the copyright code. Since then, it has been neglected, and very little of the copyright code relates to unique issues concerning software (source vs. object code, embodiment of programs, etc.).

Now, with the Berne Convention's more stringent rules on compulsory licensing and moral rights, many lawyers are starting to feel that software should be protected by other means than the current copyright code. For example, a special form of protection could be created that only covers information and software and does so in a fashion that recognizes the inherent relationship between the two. Or, a special type of patent law could be created for software to give software protection under patent laws.

Some questions that the Berne Convention rules bring up include:

- Can the U.S. take software out of the copyright laws after joining the Berne Convention? Some argue that once you sign an international treaty, you cannot change the local rules about what is covered by the treaty.
- Would it be politically feasible to take software out of the copyright code? Since the Berne Conv tion gives such long-lasting and tight control o a copyright, large corporations like IBM, Ap and Microsoft may be hesitant to set up a n body of law which, although being more realis about what software is, gives shorter-lived prot tions. Large computer companies have usua profited by vague laws that must be decided the courts since large corporations have mu more money to spend on lawyers.

Paul Hoffman is a freelance writer who has written five books about computers.

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Rodime Loses Most Of Patent On 3.5 Inch Hard Disks

In a direct hit at a questionable patent, the U.S. Patent Office has told Rodime plc that it patent for 3.5 inch Winchester disk drives is invalid. This punches a huge hole in Rodime's efforts at suing IBM, Miniscribe and Conner Peripherals over patent infringement. Ironically Rodime had asked the Patent Office to reaffirm its patent in advance of the court case instead, the patent office said that 14 of the 16 claims made in the patent were part o the "prior art" and therefore not valid claims; two claims were upheld. Basically, you can patent what is already known or generally obvious in the field, and the Patent Office sai that most of Rodime's claims fell into those categories.

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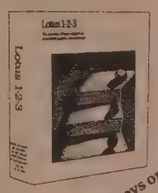

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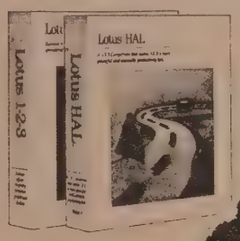

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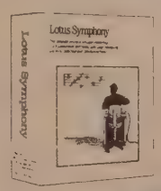

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• How would the restriction against compulsory licensing affect "look and feel" cases? If you can copyright the look of a program, and the government cannot force you to license your copyright, you have an absolute lock on that look, and that lock is backed up by an international treaty. If a court gives copyright protection to a broad category of visual design (as some companies are trying to get), the copyright owner could own an unrestrictable monopoly on a technology.

• How are an author's moral rights infringed by modifications of his code? For instance, could a software manufacturer use the Berne Convention to prevent utility program manufacturers from making programs that work in concert with their programs? By adding functionality to a program, is the utility program modifying the program? What about utility programs that modify the look of a program (such as by adding new features)? This issue becomes especially important for operating systems, and is probably the reason that IBM pushed so hard for acceptance of the Berne Convention. A manufacturer of an operating system might have complete legal control over what sort of programs could be allowed to run under that operating system, depending on the interpretation of the concept of "modifying."

The acceptance of the Berne Convention should keep the copyright lawyers busy for years determining what the effect will be on U.S. copyright. Since the copyright law for software is still in a state of flux due to conflicting judgments in lower courts, it will certainly make the waters for software developers even more muddy. If the U.S. decides to update its software policy and make a separate body of law for software (similar to what it did for chip masks a few years ago), there will certainly be long legal fights about whether such a move is constitutional. Although the Berne Convention gives authors of traditional works more rights, it may end up hampering the software industry to the point where new technologies are ignored or put aside due to previous ownership of copyrights.

COMDEX Spring: Mid-Year Blahs

The highlights of COMDEX Spring, if you could call them that, were important industry analysts telling the audience that the microcomputer industry was in great shape, maybe. There were few significant announcements of new products and only a smattering of interest from computer dealers for what was happening at the show. It almost seemed like the dignitaries outnumbered the attendees.

The keynote speaker, Vittorio Cassoni, spoke as if he still worked for AT&T. Cassoni, who recently moved back to Olivetti after two years at the lead of AT&T's computer division, made an impassioned speech about how important UNIX is and how users all over the world are demanding that vendors provide better UNIX platforms. He said that UNIX now has an "overwhelmingly popular momentum" and that it is a "serious competitive threat" to all other operating systems. At a UNIX convention, this would be considered preaching to the choir; at COMDEX Spring, he was greeted with a few embarrassed giggles and a great deal of indifference. Most of the show floor was dominated by MS-DOS software.

This is not to say that there was no UNIX news at COMDEX Spring. A well-known manufacturer announced its first version of UNIX: Commodore. Yes, you will soon be able to run UNIX on your Commodore Amiga. The version of UNIX that Commodore will market is full UNIX System V and contains all the common UNIX utilities. Commodore said that they expected to sell the UNIX mostly into college environments and in the computer-aided design markets. Commodore also announced a 68020 speed-up board for the Amiga and video products to give the Amiga higher resolution. The products will be available this fall.

IBM's William Lowe and Microsoft's Bill Gates tried to convince listeners of the groundswell of OS/2 applications, but their booths showed that the applications are still few and far between. Although Microsoft has made it much easier to develop OS/2 applications in recent months, many software manufacturers are still saying that they don't intend to have OS/2 versions of their programs available for at least a year. Those who were showing OS/2 applications admitted that their sales had been terrible so far. Apparently, Microsoft is suffering from the same chicken-and-egg phenomenon that kept many software vendors out of the Macintosh market for the first two years. However, IBM still asserts that OS/2 and Presentation Manager are still key to IBM's SAA strategy and that IBM will strongly support software manufacturers who conform to the SAA standards.

If content doesn't thrill you, maybe size will. The term "gigabyte" was being tossed around in a few booths at COMDEX Spring, and the result is that users with huge amounts of data will soon have a place to store them. (A gigabyte, for the number weary, is a billion bytes, or a thousand megabytes.) Maxtor, a major manufacturer of mass storage devices located in San Jose, announced an erasable optical disk system that can store a gigabyte of data and can access that data faster than the average PC hard disk. Their new Tahiti disk series stores 512 megabytes on each side of a 5.25 inch optical disk and can be attached to any computer with a SCSI interface. The drive uses a few new technologies and is much faster than any of its competition. When it is available this fall, the drive will sell for $6000, with each disk costing around $250. Gigatape, Inc. of Santa Barbara introduced a tape drive that holds 1.2 gigabytes on a digital audio tape (DAT). The system is slow and expensive now, but the speed is expected to increase and the cost decrease as the concept catches on. The Giga 1200 records at five seconds per megabyte and costs about $6,500. However, the tapes used by the system will soon be available in record stores for about $10 each.

Other COMDEX Spring announcements:

• Toshiba introduced a CD-ROM player for the Macintosh, which should sell for much less than Apple's CD-ROM player. The new Toshiba drive will have all the capabilities of Apple's drive.

• Zenith expanded its line of AT-compatibles with a new, smaller machine. The Z-286 LP has 3.5 inch floppy drives and takes up only a little more room on a desk than a standard PC monitor (about 13 inches square).

• Holmes Microsystems introduced a board for popular laptop computers which allow them to send and receive FAX copies. This allows businesspeople on the road to send and receive copies of documents that appear as they look on paper.

• A standard joke on the COMDEX Spring floor was that there were more machines without a CPU than at any previous show. This was due to many clone manufacturers having models that used a 25-Megahertz 80386 CPU; however, most manufacturers had fewer than a dozen of the chips on hand so they could not give accurate estimates when the machines would ship. Intel said that it is ramping up production of the chips as fast as possible, but did not give any commitments on when they would be available in quantity.

IBM Buys Part Of Metaphor And Gets Advanced User Interface

Taking one step further from Microsoft, IBM recently bought a small part of Metaphor Computer Systems for $10 million in exchange for the use of the Metaphor graphical interface on IBM's PS/2 line. Metaphor's technology makes it much easier to find data in large and diverse data bases by using easy-to-understand symbols and a special data-processing language. However, Metaphor has mostly used the technology on its own workstations and has sold them in limited quantity to key clients. This is the first time that the Metaphor interface will have a wide distribution.

IBM intends to include the Metaphor software with its version of the OS/2 Extended Edition so that users can access databases more easily. This will directly compete with other hardware vendors who offer OS/2, since they will not be able to replicate the Metaphor interface. Microsoft will be co-marketing a database management package with its version of OS/2 Extended Edition, but the interface is not expected to be nearly as good as IBM's new software. The Metaphor software could help IBM woo customers who want an all-in-one package when they buy their OS/2.

The IBM-Metaphor deal comes during a time when many manufacturers are treading lightly due to the Apple-Microsoft case. Metaphor is considered to be a safe company since the Metaphor product has been out longer than the Macintosh, although not longer than the Apple Lisa. IBM claims that the Apple lawsuit played no part in its decision to go with Metaphor, stating that it has been in negotiations with Metaphor for almost a year. IBM wants to make it as easy as possible for its microcomputer users to access relational databases on its larger systems such as the 9370, and making the interface easy is one of the best methods. IBM will make sure that the Metaphor product follow IBM's SAA guidelines so that the PS/2 will be able to access data from almost any IBM source.

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❒ **X-RATED PRINTSHOP (150)** - X-Rated graphics for Printshop.
❒ **BAD-BAD (289)** - Naughty adventure game. CGA required.
❒ **ASTRO-[bleep] (297)** - Dirty arcade game. CGA required.
❒ **NASTY GIRL (435)** - The name says it all... CGA required.
❒ **MAXINE (497)** - Must see to believe.... CGA required. EGA suggested.
❒ **X-RATED COLOR SHOW (496)** - Some lovely ladies. CGA required. EGA better.

BUSINESS

❒ **EZ-FORMS Rev. C.24 (66)** - Menu driven forms generator. misc. skeleton forms.
❒ **EASY PROJECT V1.2 (440)** - Complete project management system. Excellent.
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❒ **FILE EXPRESS V4.01 (33 & 34)** - (2 disk set) Menu driven. easy to use database for beginners to experienced.
❒ **WAMPUM V3.1B (37 & 38)** - (2 disk set) Menu driven dBase III clone. supports functions of dBase. Knowledge of dBase suggested. Latest update.
❒ **PC-FILE + V2.0 (493 - 495)**- (3 disk set) Full-featured database: help screens. menus. macros. One of the best.
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❒ **dGENERATE V1.0 (511)** - Screen & source code generator by Tom Rettig. dBase III required.

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❒ **COMPOSER (3)** - Create. save. edit. play. & print your music. Nice...
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❒ **BEGINNING SPANISH (121)** - Teaches vocabulary. phrases. etc. Basic required.
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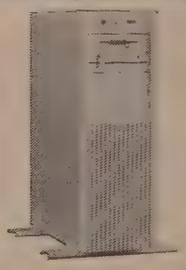

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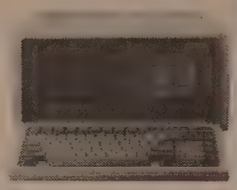

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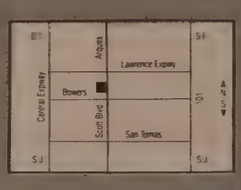

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PRODUCT NEWS

Ashton-Tate Upgrades dBASE Mac, Announces New Runtime For Developers

Ashton-Tate has upgraded *dBASE Mac* to allow it to run other programs from within *dBASE Mac* and to allow it to use XCMD and XFCN functions written for Apple's *HyperCard*. The new version will be free to current users, according to the company. *dBASE Mac* can now take advantage of the growing number of *HyperCard* extensions in its own program, giving it a big lead over other database managers which are not extendable. The XCMD and XFCN functions have been used to interface peripherals such as bar-code readers and CD-ROM drives to *HyperCard*; they will now also work with *dBASE Mac*. In addition, *dBASE Mac* users will also be able to run standard Macintosh programs without having to leave *dBASE Mac*; this allows users to import and export data much more efficiently.

dBASE Mac developers can now distribute their database programs to clients without forcing the client to have a copy of *dBASE Mac*. Ashton-Tate is allowing developers who buy the *dBASE Mac* Runtime to make unlimited copies of the runtime portion for any client, thus freeing them from having to own *dBASE Mac*. The cost of the runtime package is $300. Although sales of *dBASE Mac* have been good, Ashton-Tate feels that this package should help convince developers to use *dBASE Mac* instead of its competitors such as *4th Dimension* and *Omnis*. Ashton-Tate, 213/329-8000.

Borland Updates Turbo Prolog, Offers Free Upgrade

Hoping to spur the growing fifth-generation language market, Borland International announced a new version of its successful Turbo Prolog language and said that it would update current users to the new version for free. Turbo Prolog 2.0, which will sell for $150, includes extensive database support so that developers can set up database applications quickly. The package also supports EMS extended memory for larger programs or programs that access large data sets. The company says that the new features will make it easier to work with the Prolog language, which is becoming popular in the American artificial intelligence market. Borland, 408/438-8400.

Microsoft Word For The PC To Come With Fonts And Pageview

Microsoft announced that, starting immediately, Word 4.0 for the IBM PC will come with coupons for free copies of Bitstream *Fontware* and Microsoft *Pageview*. To get the free software, users simply return the coupons to Microsoft. Bitstream's font installation package, which includes versions of the Helvetica and Times Roman fonts, allows laser printer users (either Hewlett-Packard or PostScript compatible) to use expandable fonts with their work. *Pageview* allows *Word* users with a graphics adapter to preview the output of Microsoft *Word* before they print. *Pageview* also lets you change margins and page setup characteristics before you print. Both packages require a hard disk. Microsoft, 206/882-8080.

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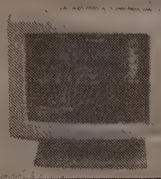

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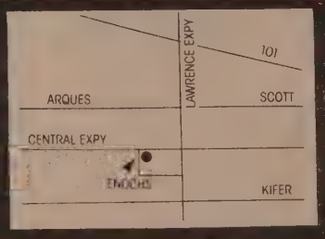

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Software Publishers Urged To Start Using Universal Product Codes

The Software Publishers Association (SPA) recently urged all software publishers to start using the ubiquitous bar codes on all their products. The SPA feels that this will help computer stores keep better track of inventory and will make the software industry seem more mainstream in the American marketplace. The SPA has send out information on how a company can obtain UPC codes and how to prepare packaging using the UPC codes. Software Publishers Association, 202/452-1600.

Ron Posner Gets Around

Industry veteran Ron Posner, previously executive vice president at Ashton-Tate and president of Ansa before it was bought by Borland, has been named to the board of directors of two companies. He will be on the board of both Migent (developer of the Emerald Bay database technology) and Presentation Technologies (manufacturer of high-quality slide makers for personal computers). Posner has recently left Borland to pursue other business interests, which seems to include being on many boards of directors.

California Assembly Bill Would Create Information Age Commission

Being on the leading edge is never easy, and California has often been on the leading edge of many such as computers. A new bill that is making its way through the California legislature would help California plan for the effects of the information revolution and would thus help the California computer and information industries. Sponsored by Assemblyperson Gwen Moore (D-Los Angeles), AB 3487 would set up and fund the California Commission on the Information Age so that California could be a step ahead of changes in the industry. The bill is currently in the Assembly, having passed successfully out on its first committee test.

Xerox Buys Datacopy To Expand In Desktop Scanner Market

In a move to help maintain its dominance in the rapidly-growing desktop publishing field, Xerox recently announced plans to acquire Datacopy of Mountain View. Datacopy is one of the leading manufacturers of desktop scanners and optical-character recognition (OCR) systems, an area where Xerox has traditionally been weak. Datacopy's scanners work with both Apple Macintosh and IBM PC and can be used to copy pictures or text from pages. Although Xerox has products in its Kurzweil Computer Products subsidiary which also perform these tasks, their products are much more expensive and are not common in the microcomputer market. Datacopy has 90 employees and had revenues of $13 million in 1987. Datacopy will become a division of Xerox and will retain its name and most of its management structure. Xerox, 203/329-8700; Datacopy, 415/965-7900.

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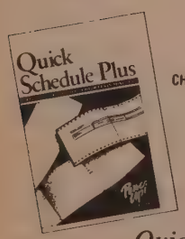

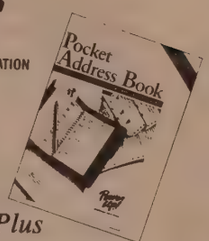

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On The Firing Line

WordPerfect 5.0 Sets A New Standard

By Stephan Wickham
and the Diamond Software Technical Team

It seems that the whole computer world is going crazy about *WordPerfect* 5.0. Why has this product become the undisputed king of IBM word processors? Quite simply, because *WordPerfect* is a superior product. It is astonishing to note that over 50% of all *WordPerfect* sales stem from word-of-mouth referrals instead of advertising. This is a testament to the high quality of the product offered by the folks from Orem, Utah. *WordPerfect* is so good that most of its sales stem from friends passing the word. Recommending *WordPerfect* is truly doing a friend a favor.

Before I started using *WordPerfect*, I was a *WordStar, MultiMate* and Wang word processor user. I became interested in *WordPerfect* through Larry Kelley, Diamond's software corporate support expert and a longtime *WordPerfect* user. Now that I've seen *WordPerfect* I'm hooked. In fact, this column was created using *WordPerfect* and it takes a really good program to get me to change.

I feel really comfortable knowing that WordPerfect Corporation maintains a huge 270+ technical group to help *WordPerfect* users. Most software companies don't even have that many employees in the whole organization. Support is available toll free. A popular media joke has the telephone company rewiring the state of Utah to keep up with the calls going into WordPerfect Corporation. WordPerfect may have the largest technical support staff in the microcomputer software industry.

WordPerfect 5.0 is just not a simple update of an old program. Major changes make *WordPerfect* a very fluid word processing environment. Menus now offer a choice of using mnemonics to make selections.

The *WordPerfect* 5.0 screen will be familiar to users of past editions. The only change made to the operating panel is to the status line, which can now display the cursor in inches, centimeters or points (the status line is optional). Absolute margins now specify distances in measurements rather than character positions. Lesser word processors that use measurement systems based on typewriters will be limited in functionality compared to a modern program like *WordPerfect*. It is impossible to do high-level document creation without using a measurement system, such as points or picas. A plain measurement system based on characters just will not offer the flexibility that is necessary in a world full of laser printers capable of printing multiple fonts.

Text-integrated graphics are now a built-in function of *WordPerfect*. Graphics can be placed anywhere on a page, inserted in a line, tied to a paragraph and included in a header or footer. These graphic images can be rotated and scaled. *WordPerfect* is able to import images saved in Lotus PC, HPGL Plotter, *AutoCAD* DXF, CGMI, PCX, TIFF and a number of paint program formats. These images can be read from a saved graphic file or read from a file created by making a snapshot of a graphics screen with a *WordPerfect* utility. Sizing and cropping are a snap and you can also indicate the style and thickness for printing a border. You can even add captions to your graphic images.

WordPerfect provides an ideal environment to design newsletters, reports and professional documents with graphics for users who don't need the heavy power of a desktop publishing package, such as *PageMaker*.

The preview feature can now display an entire page of text and graphics at the same time. It is easy to zoom in for a detailed view or show facing pages on the screen. Graphic images and type fonts appear on the screen the same way they will be printed. *WordPerfect* supports all the popular graphics cards including the Hercules Graphics Card Plus, Hercules InColor with RamFont, CGA, EGA, VGA and IBM 8514A.

Users with a Hercules Graphics Card Plus or Hercules InColor Card will be pleasantly surprised by *WordPerfect*'s utilization of the Hercules RamFont feature. *WordPerfect* displayed on a Hercules RamFont equipped card allows you to edit up to twelve different fonts on-screen at the same time at a hardware level, without giving up any screen speed. You will be able to see boldface, italics, superscript, subscript, outline, small caps, underline, double underline or a combination of these attributes. Five different type sizes can be shown on the screen at a time. Users who are going to do primarily word processing or have a need for only monochrome graphics are strongly advised to consider the *WordPerfect*/Hercules combination. This duo produces a very powerful document production system. *WordPerfect* on an EGA or VGA card displays the different attributes by varying the colors, which is not quite as slick as the Hercules method. *WordPerfect* does allow you to customize the colors you want to indicate a particular print attribute.

Word processing software is typically written to run in text mode, which means that it is limited to displaying characters on the screen through the graphics card's character generator. A typical graphics card only allows for 256 predetermined characters. This makes it impossible to display attributes, such as italics. With RamFont, over 3,072 characters can be stored on a Hercules graphics card. This is why a Hercules card can display all the type attributes right on the screen.

The Styles feature will be popular with users who use the same document formats often. This feature allows you to imbed formatting codes into your documents. Definitions are created for any recurring formatting command. You can also attach a name and description to your style definitions (up to 50 characters) for easy future reference. Definitions can be edited and deleted. Editing the definition is very easy, and tagged document text will quickly reflect the changes you make. To use your predefined formats, just call up a definition and then type your text.

There is now a Soft Keyboard feature, with which you can redefine your keyboard. This feature can be used to allow *WordPerfect* to work with formatting commands from another word processing system. There are preset Soft Keyboard files already created for many of the popular word processing programs. It is possible to create a custom command file if you can't find a file that matches your old word processor. It would be better, though, if you just use *WordPerfect* as it was intended — with the *WordPerfect* command set. After all, *WordPerfect* is the standard used by about 50% of corporate users, and it is valuable to know the standard *WordPerfect* commands. However, those of you who don't like this advice can still have it your way.

The macro definition and editing capabilities in *WordPerfect* have been greatly enhanced. You can now include a description for your macro (up to 60 characters). The description will be displayed when you edit the macro, but will not show up on execution. A powerful macro editor has been added that you can use to edit any existing macro. *WordPerfect* 5.0 includes a large number of predefined macros.

For combining files (perhaps chapters of a book) there is a Master Document feature. This is used for creating lists, indexes, footnotes, endnotes, references, page numbers, and for table of contents generation. The individual files can be added and subtracted from the master documents as desired. It is much easier and faster to work on a large document by constructing the document in the form of logical sections.

In large document creation you may desire to include references to other pages, figures and notes. With *WordPerfect*'s Automatic Reference feature it is possible to mark a reference once and it will be updated if factors like page numbers change. A reference can be tied to a page number, outline, or paragraph number, footnote number, endnote number and/or graphics number. It is also possible to create multiple references.

Fonts within *WordPerfect* may be mixed on a page and changed without affecting settings such as tabs, margins or column definitions. Horizontal and vertical spacing will be adjusted automatically to match the selected font. If you change printers, *WordPerfect*'s intelligent printing feature will select corresponding fonts. New print attributes include large, extra large, small, fine and colors (for color printers). You are no longer limited to just the IBM 256 character set. Over 1,000 characters are supported, which includes math symbols, copyright, trademark and Greek. With the right printer, up to 250 fonts can be on a given page. *WordPerfect* now also includes character kerning to vary the distance between each character.

Parallel columns can now extend past a page break. This is a popular feature with script writers. It is now also possible to vary the spacing in a column.

It is very easy to see why people are breaking down our door to pick up a copy of *WordPerfect* 5.0. This program is clearly the best all-around word processor for most document production. I'm keeping my copy.

Diamond Software has been authorized by WordPerfect Corporation to provide *WordPerfect* upgrades. Copies of *WordPerfect* 4.2 purchased after February 1, 1988 will be upgraded at no cost. Copies purchased before February 1, 1988 can be upgraded for $60. Proof of purchase and the title page from *WordPerfect* 4.2 must be provided. Please contact Andrea at (415) 633-2588.

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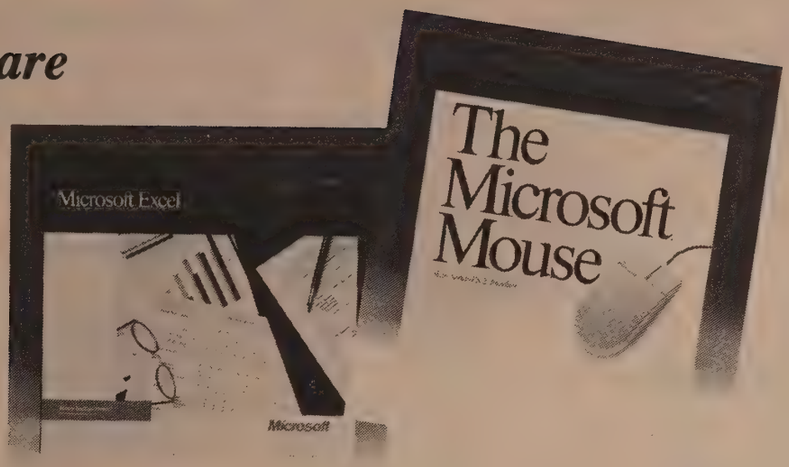

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Biofeedback On Your PC, Debunking The Voice-Activated Typewriter, And Other Matters

Herewith is offered more titillation for the techno-talented, and possible enchantment for entrepreneurs.

Expanding Biofeedback

A generalized biofeedback "experimenter's kit" should be a fascinating product—a peripheral to plug in to a personal computer. Sort of a "Paintbox" for sensory artists.

It would have electrical, moisture, pressure and temperature sensors in wrist bracelets and skin suction cups—like those found on EKG machines and truth detectors. Of course, it would include appropriate safety circuits, but most of the system would be harmless low-power devices, anyway.

The sensors' analog signals would be measured at computer-specified sample times and digitized; the results would be held in buffers, then transmitted to the experimenter's computer upon request. The most marketable units would probably appear to the computer as simply plug-in ASCII terminals, sending ASCII-coded input to the computer and accepting ASCII-coded commands from the computer via a standard terminal I/O port.

Such data acquisition peripherals have been plugged in to biomedical research computers for decades. This realizable fantasy simply makes those researchers' tools available to individual experimenters in an inexpensive, easy-to-use package.

Rethinking The Power Supply

Why does the mind's ear magnify the buzz of switching power supplies and the exponentially irritating whir of computer fans and disk motors? Most of us can sit in front of a fanless, low-power CRT terminal for hours—hooked to a remote computer. But our desktop computer's fan and motors often become unacceptable noise pollution after much less time—as does the buzz of many ever-on wireless-remote stereo/video widgits in a bedroom, late at night.

Our stereo, video and computer gadgets are already componentized—having separate tuners, amps, tape decks, CD players, keyboards, CRTs, printers, etc. Let's take it another step or two: make the power supply an essential-but-separate, plug-in component—just as many stereo system amplifiers are separate but essential components.

Consider the advantages: the single power supply could then be placed some distance from the user—and the user's ears. This might even be in a separate room, vented closet or sound-retarding cabinet. Smaller cables could deliver the safer, lower-power DC voltages to plugs on the backs of the computer, video and stereo components—and to halogen lamps, calculators, phone machines, electric erasers, microcassette dictation units, etc. Only one power supply would be needed, sized for the user's individualized set of gadgets. Each component would also be lightened by the weight of the absent power supply.

The half-dozen voltage converters now plugged into outlets could disappear. All gadgets could plug into the single voltage converter—just as all of the voltage converters now plug into the wall sockets that ultimately connect to the Great Power God in the Sky.

A separate power supply could be further componentized to allow options of line-voltage surge-protection on the AC side, and a UPS—uninterruptable power supply—on its DC side. That's for those power outages that Lord Murphy requires just before the user saves eight hours of creative labor.

A conservationist's aside: most UPSes now take 120V-AC, convert it to 12V-DC, store it in batteries—then take it from the batteries, convert it back to 120V-AC, and feed it into the computer . . . which converts it back to low-voltage DC power for the computer's integrated-circuit boards! Of course, there are power losses and heat generation at each conversion. Also, a single UPS'ed power converter would more easily connect to solar voltaic sun-power arrays.

More Capacity For Storage Devices

Manufacturers could expand the capacity of their rotating mass storage units—disks, CD-ROMs, etc., by a technique used by a few disk makers, but apparently not by most.

Laser and magnetic disks usually store data only on the outer perimeter of their platters. The middle and inner circumferences usually remain unused—because the pits/inch or bits/inch exceed the resolution of the recording technology if the same number of bits per track are squeezed into the smaller-circumference, inner tracks for the same density-per-track as they are in the larger-circumference, outer tracks.

However, if the middle and inner tracks were recorded with fewer bits per track, storage could be significantly increased on a given platter. The access arm would need a longer reach, and the controller would require more sophistication to handle sectors or tracks of differing storage capacities —but not much more.

De Bunk De Voice Typewriter

Did you notice the IBM ad on TV last year—the one about a typewriter driven by human speech? A friend reported that IBM demonstrated such a unit—sort of—at COMDEX last year. They said it was in a soundproof room with a trained operator—and never seemed to work.

Tech-novices beware: Machine recognition of generalized human speech is still a long, long way off—perhaps 25-50 years, even in soundproof rooms.

Tech-novices beware: Machine recognition of generalized human speech is still a long, long way off—perhaps 25-50 years, even in soundproof rooms. Yet there was no indication in IBM's television ad that such machines are still decades away from the average consumer.

There are multiple massive problems in developing such a technology. Recognizing a full vocabulary spoken by a given person at a given time verges on being possible, but the user must train the system to understand most words to be recognized and must say them exactly the same.

Recognizing more than several hundred words spoken by a given person at different times—e.g., once with and once without a head cold—is beyond the state of the art. Recognizing a given word spoken by different people at any time—e.g., "park" spoken by Westerners, Southerners and Bostonians—is far beyond the state of the art. Homonyms are another complex problem—words sounding the same but having different meanings in context. Background noise is a problem . . . and on and on and on.

Such grossly misleading ads weren't characteristic of Big Blew in the past.

Fantasy Overheard

Rumor has it that Apple is using a Cray megamonster supercomputer to design the next Apple—and that Seymour Cray says he's using an Apple to design his next Cray.

Share Your Innovative Intuitions

To add balance, while standing on each others' shoulders—rather than each others' toes—send your systems suggestions and implementable ideas-for-publication to Jim Warren, Realizable Fantasies, 345 Swett Road, Woodside CA 94062. Attribution for published proposals will be given to their authors, unless anonymity is requested. □

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INDUSTRY ISSUES

BY MIKE MARKOWITZ

Are Computers Neuter?

In 415 A.D., Hypatia of Alexandria was brutally murdered by a mob that considered it unnatural for a woman to be a mathematician. Since then, thousands of young women gifted with mathematical, logical, or electronic talent have suffered countless smaller everyday martyrdoms.

The prospects for a twenty-first century technological Renaissance are not bright if more than half the population grows up with the bizarre notion that computer use, like pro football or the priesthood, is a male preserve.

Exhibit A

"I am an adult services librarian and I have recently started teaching a 'Toddler Tech' course on our public access Apple computer. The course is designed to teach computer basics to 2½- to 4-year-olds and their mothers. The course has been going very well, except for the fact that 95% of the mothers who sign up for it are mothers of *sons*. I can't seem to reach mothers of daughters."

According to the Department of Labor, between 50 and 75 percent of the jobs available to the next generation will involve computers in some way. Many of these will be menial, dehumanizing data-entry jobs, of the sort monopoly capitalism has traditionally reserved for women; but many will also be the kind of creative, life-enhancing work at which women so often excel.

Late last year, Apple Computer distributed a remarkable eight-page brochure to teachers and user groups. Titled *Do Your Female Students Say 'No, Thanks' To The Computer?* it was written by Jo Sanders, Director of the Computer Equity Program of the Women's Action Alliance.

The brochure documents an ominous "computer-use gender gap." Junior and senior high schools nationwide report that most free-time users of school computers are boys. When computer use is a required part of the curriculum, of course, everyone participates. But in advanced programming courses, computer summer camps, after-school computer clubs and similar activities, the faces are overwhelmingly male. Images in the media and advertising send a strong message that computer expertise is a male thing — women are mostly shown as secretaries or sex objects.

Images in the media and advertising send a strong message that computer expertise is a male thing. Women are mostly shown as secretaries or sex objects.

The Women's Action Alliance in New York received a two-year grant from the Department of Education to work with schools across the country to overcome computer avoidance by girls. The results of the project became a book: *The Neuter Computer: Computers For Girls And Boys*. The book includes a non-technical exploration of things kids can do with computers. It describes a wide range of action plans people can implement to achieve computer equity in schools. The book provides an extensive bibliography and list of resources. When six basic strategies documented in the book were tried out in test schools, girls' computer use *doubled*. By the end of the term they were using optional computer time as much as boys.

What To Do

Here are some of the recommendations:

1. Let others know. Alert parents and teachers to the computer-use gender gap.

2. Target girls specifically. For example, use sign-up sheets that ensure girls always have access to half the computers, or set up a computer club "especially for girls." To avoid institutionalizing a sex-segregated system, drop this as soon as girls' computer participation becomes firmly established.

3. Design computer activities around girls' existing interests. Graphics programs that create and print out party invitations, banners and posters are a good example. Avoid violent game software (which doesn't belong in any school). But also avoid "fluffware" — programs that are supposedly attractive to female people, featuring interior decoration, recipe databases and shopping mall games. This sort of thing can be sexist, and insulting to girls and women.

4. Stress the social aspect of computing. Make peer pressure a positive force—"if her friends are in the computer room with her, a girl can't worry that they'll think she's weird to like computers."

5. Stress the computer's usefulness. "Many teachers have noticed that boys seem happy to sit for hours on end playing a computer game or messing around with a computer just to see what it can do. Girls, on the other hand, tend to want the computer to do something useful for them."

6. Do it again next year. "Set up a mentor system between older girls with more computer experience, and younger ones with less. Mentors ... become positive role models, and reinforce their own computer knowledge and confidence."

As a corporation, Apple seems to have a good record on issues of gender equity. The company deserves a round of applause for helping to publicize this important issue. Can you imagine IBM or Compaq taking a position on *any* social issue? *The Neuter Computer*, by Jo Shuchat Sanders and Antonia Stone (279 pages, softcover) is available for $26.40 (including postage and handling) from Women's Action Alliance, 370 Lexington Avenue, Rm. 603, New York, NY 10017. Copies of the brochure can be ordered from the same address. Price depends on the quantity ordered.

I am grateful to Jo Sanders for permission to quote so extensively from her work.

Why am I, a man, taking the time to write about this, when twenty new software packages are stacked around the desktop waiting to be reviewed? Because men are women's children. Because the disease of sexism has no place in personal computing, one of the last good, growing things left in our dying culture. Because right now, in school rooms all over the country, boys are shouldering girls away from the machines, or making them feel unwelcome in a hundred subtle ways. Think about it. □

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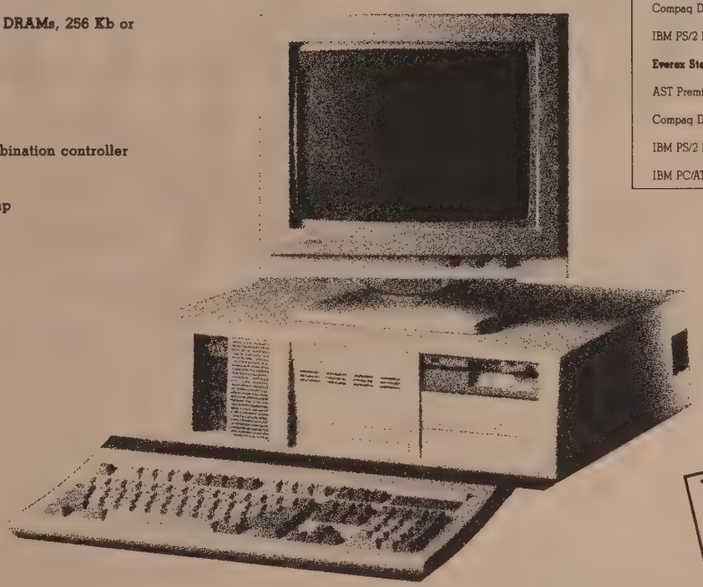
The Everex System 386 has been evaluated by XXCAL, an independent third-party testing house. The test objective, as stated in XXCAL's report of February 16, 1988, was "to reveal any problems or inconsistencies relative to a selected group of off-the-shelf commercial software, networks, and peripheral products" on the Everex System 386. XXCAL's technicians "installed each application per documentation...[then] tested all functions, commands, and options directly related to a successful and thorough test of the product."

COMPETITIVE BENCHMARK TESTING RESULTS

Based on in-house testing, Everex Computer Systems Division has compiled the following benchmark test results:

Computer System	MIPS	Landmark	Norton SI Advanced
Everex Step 386/20	**4.91**	**35.0**	**24.3**
Compaq Deskpro 386/20	4.59	34.5	24.2
Everex Step 386/16	**3.93**	**27.3**	**19.5**
Everex Step 286/16	**3.27**	**21.4**	**18.4**
AST Premium 386/20	3.04	20.0	21.0
Wyse 386/16	2.98	20.6	17.6
Acer 386/16	2.99	20.6	16.2
Compaq Deskpro 386/16	2.90	20.0	17.6
IBM PS/2 Model 80, 16MHz	2.87	20.0	17.6
Everex Step 286/12	**2.45**	**15.9**	**13.7**
AST Premium 286/10	2.02	13.0	11.1
Compaq Deskpro 286/12	1.89	11.7	11.5
IBM PS/2 Models 50, 60	1.58	9.8	9.8
IBM PC/AT 8MHz	0.93	8.0	7.7



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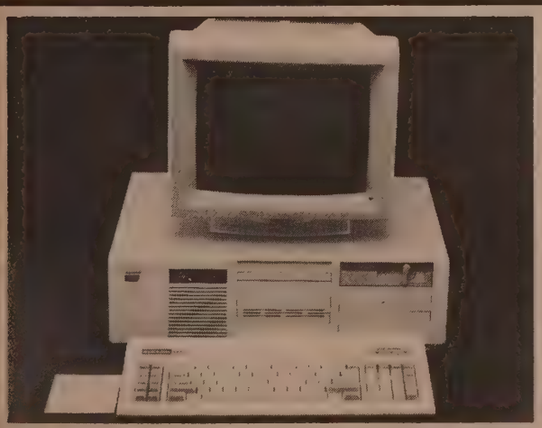

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Programming Languages For Beginners:

Which One's For You?

By Birrell Walsh

What is the best language for a beginner?

Years ago, BASIC was the only answer. Now there are innumerable options. It's an important choice, because you will be investing a lot of your attention in the language you choose. It will become a companion as you use it to solve problems and explore interests.

At one time you had to choose languages because of what they could do, and other languages could not. Now all of the major languages are quite powerful. Though it may seem very subjective, these days the most important question in choosing a language is how it feels to you. Each language has its own style. The interface with you, the programmer-to-be, is at least as important as the language's interaction with the computer.

In two articles we are going to look at a number of computer languages that you can buy for $100. This month's article deals with the Big Three: Turbo Pascal, C and BASIC. In the next we will examine languages with smaller constituencies: Forth, APL, Prolog, Trilogy and Smalltalk.

A Tale Of Convergent Evolution

It used to be that computer languages were quite different. But computer people are dedicated to finding the perfect mix, and they adopt features from one another. This convergence has gone to great lengths in the Pascal, BASIC and C.

C was once a language found only on UNIX systems. UNIX has a utility that will keep track of the parts of a software project. Called "Make," it reprocesses only those sections of the project which have been altered since the last processing. This is invaluable for huge projects being worked on by a number of people. "Make" is so convenient that it has been implemented for other languages and operating systems. BASIC and Pascal and C for MS-DOS now have versions of the "Make" utility.

Computers read "machine" code, while computer languages are (more or less) human languages. To make programs into machine code, a translation step is necessary. There used to be a major distinction between two approaches to the translation. "Interpreted" languages (old-fashioned BASIC is one) would translate each line and then execute the translation before getting the next line. The interpreter had to be present the whole time. "Compiled" languages like C and Pascal would translate the entire program ("source code" in the jargon) at once, after which the translation (the compiled or "object" code) could run. Compiled languages ran faster, but they were annoying because the compiler was a separate program from the editor in which you wrote your program. You would write a program, exit the editor, load the compiler, compile the program, run it, find a bug, swear, reload the editor, and so on.

Philippe Kahn's masterwork, Turbo Pascal, popularized the integrated compiler. The compilation was one function of Turbo Pascal; editing was another function of the same program. You could edit, compile, run and debug in a much faster cycle, because it all happened within one program. The compiler was fast, too — much faster than the independent compilers. When you finally were satisfied with the result, you could make a stand-alone program as you

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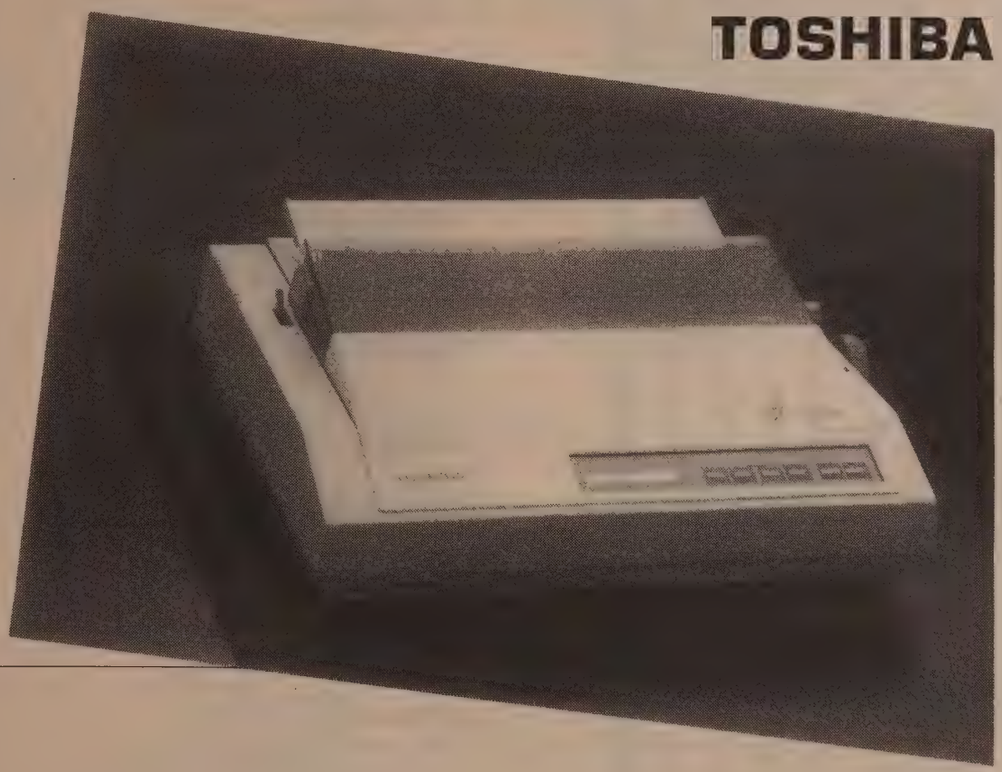

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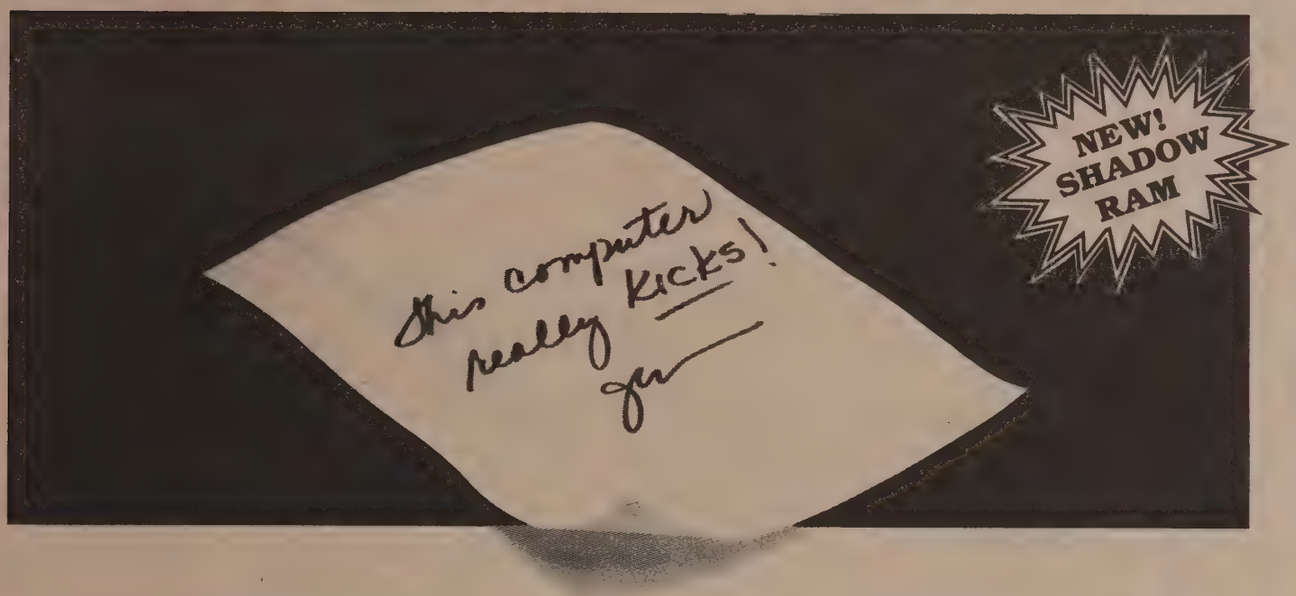

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The best features of each language now appear in most of the major languages. The result is that you can get much of the power in any language that appeals to you. What remains different is the "human interface" of each language, and the communities that you join when you use them.

could with an old-style compiler.

This was such a revolution that it was widely copied. Now there are integrated compilers for C and BASIC as well as for Turbo Pascal. Not only Borland's but also Microsoft's programs use an integrated compiler. In fact, Microsoft has gone one step further and uses a compiler in its QuickBASIC that allows you to compile a program, and then alter one line in that compilation without recompiling the whole program. This trick was (conceptually at least) itself a borrowing from another computer language, Forth.

The best features of each language now appear in most of the major languages. The result is that you can get much of the power in any language that appeals to you. What remains different is the "human interface" of each language, and the communities that you join when you use them. You can choose the interface and the community that appeal to you and find the power that you need there.

In the sample programs you can see how a simple program is written in Turbo Pascal, C and BASIC. This program (to keep it short) has no error checking at all, so please don't use it unchanged. It calculates the relative frequency of consonants and vowels. It has other uses — such a program could tell a business-translation program which (human) language it was facing.

Pascal, The Queen Of Them All

Pascal was written by Niklaus Wirth to teach people how to program. It is a very clear, very understandable language. It is so clear, in fact, that it actively encourages you to program well.

Pascal requires that you declare all the things you are going to deal with — variables and constants — before you begin the program. You must tell the system what "type" each variable is — whether it is an integer, a "real" number with a fractional part, a character, a string or a combination of those into a record or file. Wirth's idea was that if you thought out what type of data you were working with, you could work clearly and precisely and avoid muddled code. This predeclaration of variables also allows the computer to allot space for the variables in its memory. Pascal will not allow you to deal with a variable as anything but the type you declared. Even though a character is stored as a one-byte code, you cannot treat that character as a number because it is a "type error." This insistence on the separation of types is called "strong typing."

Pascal began as a teaching language, but in its original incarnations it was slow and lacked many features. It needed functions for handling strings of characters, and features for low-level interactions with the computer and operating system.

Philippe Kahn and others addressed these deficiencies. With Turbo Pascal Kahn built a language which ran fast and which had the extensions necessary for a real, working language. He also sold it for less than $100, an unheard-of price. Kahn's Borland International has pioneered the idea of powerful languages that are very good and very cheap.

Turbo Pascal became the language of thousands of beginning programmers who wanted something more powerful than the BASIC of the time. They used it to write their own utilities (how many thousand people wrote Turbo Pascal programs to convert *WordStar* files to ASCII characters?), and then went on to write more and more demanding applications.

As a result, when you use Turbo Pascal you join a mature community of programmers in the DOS world.

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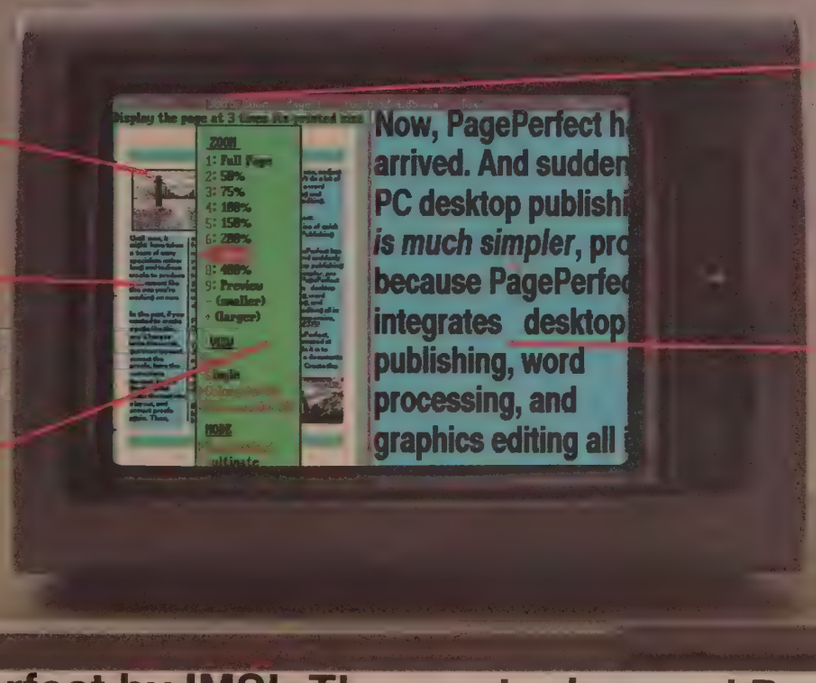

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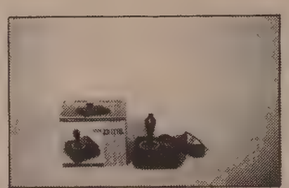

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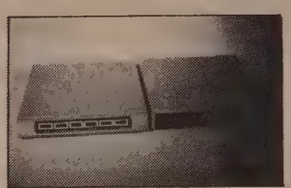

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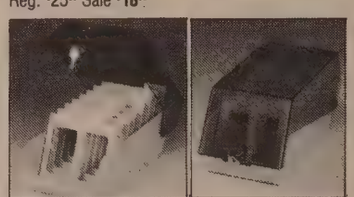

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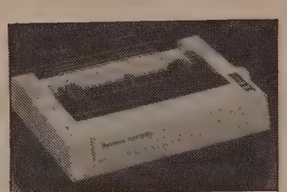

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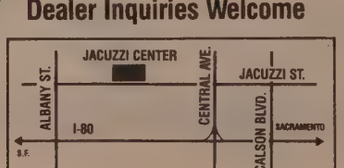

Programmers for the business market have been using Turbo Pascal for years. There are user groups for the language in most major cities and on national networks like CompuServe. When you read a discussion of programming in a professional magazine like *Computer Languages*, you are likely to see the example written in Turbo Pascal. At the same time, dialects of Pascal continue to be very common academic languages. It is used in some fascinating research projects. Both branches of this Pascal community value and insist upon readable programs that can be understood by anyone who looks at them. This may result in longer programs in source code (which means the text you write, before it is compiled). That is no loss to you if it compiles to a compact program, and Turbo Pascal programs do.

A mature community of programmers using the language also means that there will be third-party suppliers. With Turbo Pascal (and with C) you can find specialists who have written databases, utilities, screen-handlers and graphics packages. You can buy their code and use it in your projects.

The Turbo Pascal sample program declares a number of variables. It makes a string for input and one for output. These strings are actually rows of spaces for characters. To keep track of which character we are looking at, and how long the strings are, we declare two integer variables. One single-character variable is used to handle characters that are being examined.

Wirth intended that data-types make easy the solution of problems in Pascal. It has, for instance, a "set" type and a full package of "set" operators. In the example, I define the set of Letters, Consonants and Vowels. After the tidy "begin" with which Pascal marks the beginning of any multiline block of statements, I set up my whole problem with three lines of code. The variable Letters is defined as the set of characters from capital 'A' to Capital 'Z'. The variable Vowels is defined by listing them: ['A','E','I','O','U','Y']. In the next line, "Consonants = Letters - Vowels", the minus sign serves as a set operator to create the difference of two sets. Compare this with the effort involved in doing the same thing in C.

We ask the user to type in a line of text, and keep waiting until the string is not empty. We calculate how long that line is, and put that number in the "zeroth" position of the line we will eventually print. We do that because Turbo Pascal keeps a record of how long a text string actually is in the first ("0th") space in the row of spaces which make up a string. We set the vowel and consonant counts to zero.

The next set of lines allows us to assign each character as a vowel, a consonant, or something else (like punctuation). We use an extension to standard Pascal which Turbo Pascal has borrowed from C. "UpCase" is a function that turns lower-case letters into capitals, while leaving capital letters and other characters undisturbed. The program sees if the capitalized character is in the set Letters. If it is, the program asks if it is in Consonants. If so, 'C' (for "consonant") is put at the corresponding point in the output line and the ConsonantCount is raised one. If it is a letter and not a consonant, 'V' is inserted and VowelCount is raised one. If ch is not a letter — it's a space or a punctuation mark — then ch itself is put in the Output Line, and no count is raised.

At the end, the program gives you the results. It adds vowel and consonant counts to get a total, calculates percentages, and tells you the result.

At each step you can tell what the program is doing simply by reading it. This is one of the virtues of Turbo Pascal: though much extended, it remains a clear language.

Turbo Pascal is scheduled to remedy its one remaining defect — and one of the great advantages of the Microsoft family of languages, which has had this feature for a long time — by adding an integrated debugger to the program. You will then be able to buy one package in which to edit, compile and debug programs.

C: Fast, Compact, Unnecessarily Obscure

I personally don't like C, but there are those who do, and here's why. They like a language which was designed from the start to tinker with the guts of the computer. C is a language for lovers of hardware and operating systems.

C grew up with UNIX in the Bell Labs. Later versions of UNIX are written in C, no small project. The language migrated from the mini and mainframe world to personal computers, and there are now versions available for every computer I know of.

People like to work in C because they can use its remarkably dense structures to write dense code. They also usually write unreadable code.

The sample C program does the same thing which the Pascal program does. It also does it in a few less lines, largely because C uses the code "\n" to print a new line, while Pascal uses "writeln" for each blank line.

Note that there are two "include" files at the top of the listing. These are bodies of text defining input\out-

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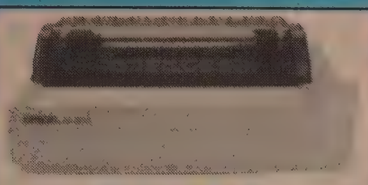

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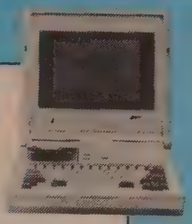

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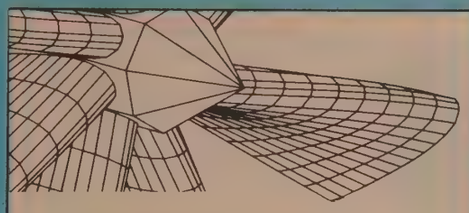

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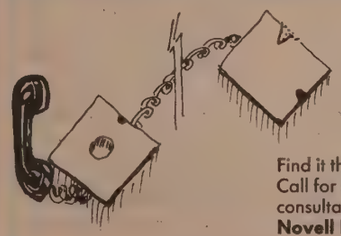

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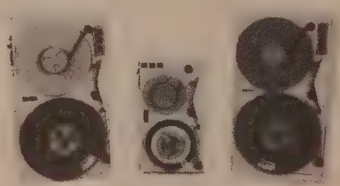

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put functions and string-handling stuff. The compiler includes them in the program before compiling.

C has types, but they are much less clear than those in Pascal. In the C program, the variable ch is declared as an integer rather than as a character because one of the program's functions wants it in that form. Wait until you see how C handles strings and arrays: regular variables are like those in BASIC and Pascal, but strings are handled with "pointers." (Pointers are like someone telling you where the mailbox is rather than just handing you the mail.) Well, sometimes they are treated that way — and sometimes they are handled as arrays. Do you find this confusing? I do too.

The algorithm is also a little different. Because consonants are more frequent (at least in English), it would be more efficient to test consonants first, and the Pascal program does so. This C program checks for vowels first, because it does not have the set functions which made it so easy to define consonants by subtracting vowels from letters. The absence of set-handling is a sore lack in C; popular programmers' magazines often run listings of code that will remedy the deficiency.

There are two places where C shines. It is extremely portable, and it has superb "machine access." The program we have written here could be compiled with very little modification for almost any computer. If it is your ambition to write programs that can be "ported" from machine to machine, it is worth learning C. When you do want to work with the registers, the operating system, and all the bits and bytes of a specific machine, again C is well equipped. It has operators for working right down to the bit level, because it was built for that purpose.

C also has a large community of programmers. It is used by serious system developers all over North America. That means that there are many third-party developers providing assistance to the C-user, and that there are plenty of people to talk with when you get stuck.

I do not like C because programs written in it are obscure and difficult to understand. Like UNIX, it has unnecessarily bizarre commands. Compare the command to read a string in the three languages:

Pascal : Readln(InputLine)
BASIC: Line Input " "; Inputline
C: scanf("%[^\n]", inputline)

The practical result is that C takes me three times as long to debug as Pascal. Do we need "malloc" and "putch" and "conio.h" and "EBADF" dotting our code? UNIX's creators took a vow never to make an intelligible command. C inherits the attitude, and the C community keeps the vow. When C was the only fast, low-level language available, we had to put up with this foolishness. Now, we simply don't need it.

My Old Friend BASIC

Once, many years ago, I spent six months developing a 50,000 byte program in BASIC. It ran, it did what it was supposed to do, and it nearly destroyed my desire to program.

Things have changed. The BASIC of today is nothing like that ancient clunker. BASIC has been updated, speeded up and generally "facilitated" until it is a useful language for sophisticated development. A number of new renditions of BASIC have come on the market. I like Microsoft's QuickBASIC. They have made BASIC what it should have been in the beginning.

Years ago, BASIC's variables could have only two meaningful letters in their names. You ended up with a lot of AXs and FYs in your programs, and couldn't keep track of them. All variables were global, so you could use a name only once in a program. The data-types did not include records made up of different kinds of other data-types. There were subroutines, but they were not named. You had to use "GOTO" and a line number. The control structures that told the language when to branch and loop were limited. The language itself was interpreted rather than compiled, so all of your work produced a s-l-o-w product. It was sort of hand-crank computing.

Now BASIC has long variable names, local, global, static and "intermodular" variables. It has named procedures and a full set of control procedures borrowed from other languages.

Microsoft has made a delightful product in QuickBASIC. The editing environment is simple and supple. It's designed so each subroutine has its own window for editing. You can hop back and forth between the main program and the procedures and functions it uses. I found myself disoriented for a moment and then said, why didn't someone do this before?

The QuickBASIC compiler is also one-better than everyone else's. When BASIC was always interpreted, the great virtue that made us forgive the interpreter's slowness was that the write-run-debug cycle was fast. Borland's fast compilers made us accept a write-fast compile-run-debug cycle, but the compile was still a delay. In QuickBASIC, when you change a line in the source code, only that line needs to be recompiled. You get very fast development cycles.

The editor/compiler watches for syntax errors as you write your code,

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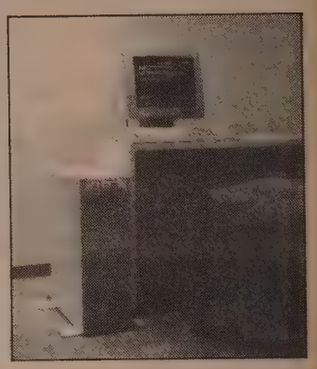

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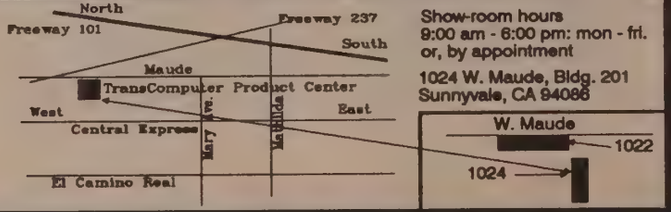

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and flags them immediately. It capitalizes keywords and even makes sure that all of your variables in previous code are capitalized (or not) as you are currently capitalizing them. The result of this editorial assistance is that you have a very readable body of code, and you catch many errors even before running the program.

How could anyone say anything nasty about such a nice language? I can't. QuickBASIC is the BASIC we always wished we had. It is the language for lack of which we converted to Pascal and C.

That's the rub. If you learn BASIC as your first language at this late stage, you will be learning a language that has fallen out of favor. In developing a usable modern BASIC, the various developers have created dialects that diverge from each other. BASIC dialects from machine to machine have always been different; now they are significantly different even within the DOS world. Most of them are supersets of BASICA or GWBASIC, the languages that come with IBMs and clones. They will all run the old programs; it is in their extensions that they differ. Since you are making stand-alone programs that will execute without an interpreter, this is not disabling; but it means that you will not be joining as large a contemporary community of programmers as you will if you choose Turbo Pascal or C. There are fewer third-party vendors and fewer people to talk to about puzzling code problems. Not too many employers are impressed if you say you program in BASIC. It's a shame, too: QuickBASIC is superb.

The Envelope, Please

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A Little Help From Your Friends

If you would like to have some help in learning these languages, there a lot of products available.

Borland publishes a two-disk-and-a-book package called *Turbo Tutor.* It walks you through Turbo Pascal. I was pleased to find I learned a lot from the package, even though I've used Turbo Pascal for years.

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Peter Norton has been "Mr. Utility" in the DOS world for years. His *Norton Utilities* top the charts. His company is now marketing ingenious memory-resident assistance for programmers in C, Turbo Pascal, Quick- or Turbo-BASIC, and other languages and operating systems. When you open the pop-up programs, they show you a list of expressions in the language. Choose one, and you get details about the correct syntax, and examples of code using the expression.

The "engine" for these programmers' guides allows you to build your own pop-up database, about any topic whatsoever. The programmer's-guide modules for each language are also well-crafted.

Peter Norton Computing, Inc.
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(213) 319 -2000
$50 for the "engine";
$50 for each language module.

If you must learn C, there are many excellent books. Some cynical mornings I suspect that C and UNIX programmers made the language obscure so they could write explanatory books. The oldest book about C, and one of the best books ever written explaining a computer language, is:

The C Programming Language
By Brian Kernighan and Dennis Ritchie
Prentice-Hall, Inc.
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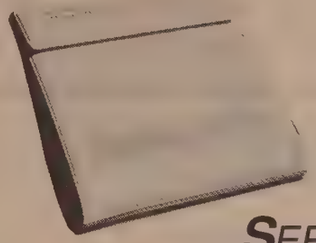

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If you already know BASIC, QuickBASIC will delight you. If you have written programs in BASICA or GWBASIC and you want to keep the programs, QuickBASIC will compile them and make them exquisitely fast. You will not find as many people using BASIC as use C or Pascal.

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Comparative Program Listings

All these programs produce the same results on the screen:

Please type up to 255 characters and hit return

"This is a test sentence."

Thank You.

There were 19 letters.

7 of them (36%) were vowels
12 of them (63%) were consonants

The pattern was:

"CCVC VC V CVCC CVCCVCCV."

The Pascal Program

```
Program cv;

{Finds the mixture of consonants and vowels in an
  input line}

var
InputLine, OutputLine :string;
LetterPosition, HowLong: integer;
Total, VowelCount, ConsonantCount: integer;
VowelPercent, ConsonantPercent: integer;
ch: char;
Letters, Vowels, Consonants : set of char;

begin

Letters := ['A'..'Z'];
Vowels := ['A','E','I','O','U','Y'];

Consonants := Letters - Vowels;

writeln('Please type up to 255 characters and hit return.');
writeln;
readln(InputLine);

HowLong := length(InputLine);
OutputLine[0] := chr(HowLong);
vowelcount := 0;
ConsonantCount:= 0;

for LetterPosition := 1 to Howlong do
begin
ch := UpCase(InputLine[Letterposition]);
if ch in letters then
if ch in consonants then
begin
ConsonantCount := ConsonantCount +1;
OutputLine[Letterposition] := 'C'
end
else
begin
VowelCount := VowelCount + 1;
OutputLine[LetterPosition] := 'V'
end
else
OutputLine[Letterposition] := ch;
end;

Total := ConsonantCount + VowelCount;
VowelPercent := (100* VowelCount) div Total;
ConsonantPercent := (100* ConsonantCount) div Total;
writeln;
writeln('Thank You.');
writeln;
writeln('There were ', Total, ' letters.');
writeln(VowelCount, ' of them (', VowelPercent,'%)
  were vowels.');
writeln(ConsonantCount, ' of them
  (',ConsonantPercent,'%) were consonants.');
writeln;
writeln('The pattern was:');
writeln;
writeln(OutputLine)

end.
```

The C Program

```
\* program cv.c
to count vowels and consonants * \

#include «c:\quickc\include\stdio.h»
#include «c:\quickc\include\string.h»

int
letterposition, consonantcount,
vowelcount, total, howlong,
ch;

char
inputline[256], outputline[256],
*letters = "ABCDEFGHIJKLMNOPQRSTUVWXYZ",
*vowels = "AEIOUY";

main()
{
printf("Please type up to 255 characters and
  hit return\n\n");
scanf("%[^\n]", inputline);
howlong = strlen(inputline);
outputline[howlong] = '\0';

for (letterposition = 0; letterposition < howlong;
letterposition++)
{
ch = toupper(inputline[letterposition]);
if (strchr(letters, ch) != NULL)
{
if (strchr(vowels, ch) != NULL)
{
vowelcount++;
outputline[letterposition] = 'V';
}
else
{
consonantcount++;
outputline[letterposition] = 'C';
}
}
else
outputline[letterposition] = ch;
}

total = consonantcount + vowelcount;
printf("\nThank You.\n\nThere were %i
  letters.\n", total);
printf("\n%i of them (%i%%) were vowels", vowelcount,
(100*vowelcount) \ total);
printf("\n%i of them (%i%%) were consonants",
consonantcount, (100*consonantcount) \ total);
printf("\n\nThe pattern was:\n\n%s", outputline);
}
```

The QuickBASIC Program

```
' Program cv
' to count vowels and consonants

Letters$ = "ABCDEFGHIJKLMNOPQRSTUVWXYZ"
Vowel$ = "AEIOUY"

PRINT "Please type up to 255 characters and hit return."
PRINT
LINE INPUT " "; Inputline$
Howlong% = LEN(Inputline$)
PRINT Howlong%: PRINT
Vowelcount% = 0
Consonantcount% = 0
Outputline% = STRING$(32, 255)


FOR Letterposition% = 1 TO Howlong%
ch$ = UCASE$(MID$(Inputline$, Letterposition%, 1))
IF INSTR(Letters$, ch$) THEN
IF INSTR(Vowel$, ch$) THEN
Vowelcount% = Vowelcount% + 1
MID$(Outputline$, Letterposition%) = "V"
ELSE
Consonantcount% = Consonantcount% + 1
MID$(Outputline$, Letterposition%) = "C"
END IF
ELSE
Outputline$(Letterposition%) = ch$
END IF

NEXT

Total% = Consonantcount% + Vowelcount%
Vowelpercent% = (100 * Vowelcount%) \ Total%
Consonantpercent% = (100 * Consonantcount%) \
Total%

PRINT
PRINT "Thank You."
PRINT
PRINT USING "There were ## letters."; Total%
PRINT USING "## of them (##%) were vowels.";
  Vowelcount%, Vowelpercent%
PRINT USING "## of them (##%) were consonants.";
  Consonantcount%, Consonantpercent%
PRINT
PRINT "The pattern was:"
PRINT
PRINT Outputline$
```

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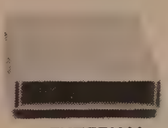

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QUARTERDECK

THE PEOPLE'S CHOICE

By Jeff Spurrier

In a hallway at Quarterdeck's Santa Monica offices, scores of newspaper and magazine clippings are taped to the wall. They date from 1985 to last week and come from computer journals from all over the world: the Far East, the South Pacific, Latin America, Europe and America. All contain references either to Quarterdeck or its best-known product, *DESQview*.

"It's the most bedraggled wall," says Quarterdeck president Therese Myers, whose office looks out on the hallway. "But it serves a purpose. The odds were extraordinary from Day One, but we've done quite a bit. There are something like 900,000 copies out. That's no small feat."

It certainly isn't, especially when you consider Quarterdeck's competition in its chosen niche of multitasking, multi-windowing utility software: IBM and Microsoft, the two superpowers of personal computing.

While Quarterdeck has carved out a healthy respect for itself among both users and industry critics — with nearly 1,000,000 copies out, *DESQview* is obviously doing something right — it's not all smooth sailing ahead. For one thing, Microsoft's competitor with *DESQview*, *Windows*, has just released an upgrade that corrects many of the problems with previous releases. More significantly, there's OS/2 looming on the horizon, a typhoon-sized maelstrom of unknown potential and power, heading for shore with unseen compatibility problems, and boasting a built-in ability to duplicate some of *DESQview's* most attractive features. And *Windows*, one must remember, comes from OS/2's developer and is compatible with the new system — unlike *DESQview*.

One might expect the view from Myers' desk to be somewhat bleak,

Quarterdeck president Therese Myers: "We went through a period where people didn't buy *DESQ* because they wanted to wait for IBM's *TopView*," says Myers. "But then it shipped and our sales started up again."

PHOTOS: © 1988 by Ann Summa

but instead she's decidedly upbeat. Sales are brisk, the demand for the company's new package of Application Program Interface tools is high, and this August, Quarterdeck is hosting its first developers' conference.

It's almost as if OS/2 didn't exist — although Myers is very glad it does. Ironically, for the second time in the brief history of the Quarterdeck, IBM has provided a window, as it were, of opportunity by its domination of the market.

EARLY DAYS

Quarterdeck began in 1981 when Myers and a small crew of her fellow workers at Citicorp decided it was time to branch out on their own. The IBM PC had just been announced; Myers and Gary Pope, Quarterdeck VP, co-founder and head of software development, decided they should try to do something for it.

They were hardly novices in software design — or hardware for that matter. In the late '70s, Myers, who holds a master's degree in industrial administration from Carnegie-Mellon, was given the job of developing an office automation system for Citicorp. It was 1977 and the idea of personal computers was just starting to emerge.

"We built the hardware and the software," she recalls with a laugh. "We didn't know any better. We wrote our own integrated software. We had E-mail, links, macro capability, word processing, film systems, calendar, phone messages, mail in and out. And if you wanted to see something on legal size paper, you just turned the screen sideways. It had a help key, wastebasket, cut-and-paste. Everything that you talk about now."

After building an initial 15 machines, Citicorp decided to mass produce the system, eventually selling thousands throughout North America, earning a ranking of second (behind Wang) in price performance from industry analysts. In the process, Myers learned one thing: despite the ever-expanding list of possibilities that computers promised, most users, both new and old, resisted change. Those who were computer illiterate had to be sold on "concepts" like word processing, while people already familiar with certain programs were reluctant to switch to new more powerful products.

"It became apparent in 1980 when people would tell me, 'But I like *WordStar*.' But how could they?" she says, shaking her head in amazement. "We've got a system with what-you-see-is-what-you-get, a screen that can be turned sideways. Then they'd say, 'I want a data base just like *dBASE*.' Then we understood that people couldn't give up what they had, so we had the idea for *DESQview*, which lets everything work together like (the Citicorp system) did. It lets you run whatever you like.

"We had been into workstations, but when IBM announced the PC we knew what we wanted to do — to let people pick and choose what they want. We had the idea for the environment back in 1980 – 81. We couldn't have done (*DESQview*) if we hadn't done this system first. This put it all together and had all the commands for every application uniform."

In 1981, Pope, Myers and two others began work with no budget out of an artist's studio in Santa Monica, tossing around ideas and gradually coming up with *DESQview*'s predecessor, *DESQ*. Like *DESQview*, *DESQ* was a multi-tasking, windowing environment program, but there the similarity ends. *DESQ* was written in an artificial intelligence language developed by Pope, a cross between LISP and Smalltalk. *DESQ* required 1.5 megabytes on a hard disk and 256K — the same demands of Microsoft's *Windows 2*. It was named "Software Hit of the Show" at the 1983 spring COMDEX, an accolade that brought in $5.5 million in venture capital. The product was released the following year in April, before the proliferation of cheap hard disks, which made *DESQ* primarily a power-user's product. Then four months later IBM announced its intention to develop its own multi-tasking environment: *TopView*.

"We then went through a period where people didn't buy *DESQ* because they wanted to wait for *TopView*," says Myers. "But then it shipped and our sales started up again."

Ironically, IBM's seal of approval on multi-tasking programs like *DESQ* provided a shot in the arm for Quarterdeck. Big Blue sold the concept in a way that the small company couldn't. And meanwhile, fearful of being shunted into a dead end non-standard siding, Pope and others began re-working *DESQ* to make it *TopView* compatible — thus *DESQview* was born. *DESQ* was translated from the AI language and its best features put into assembly language. Along the way, programmer's tools (now called API, application program interface) were incorporated.

"We added 'view' to the name to show it was compatible with that all-important product, the one that stayed on the market so long," says Myers, laughing. "But it was the best thing we've ever done, because it turned out the API (portion) was extraordinary. *DESQ* was a $399 product and *DESQview* was a $99 product. *DESQ* had a four-inch thick manual, *DESQview*'s is an inch thick."

Despite *DESQview*'s slimmed-down price, size and requirements (the program now needs 512K and two drives, although it runs best with memory boards or on a 386 machine), without two important inventions in the last few years, it's doubtful if the program would have achieved the popularity it has.

"Back in 1984–85, IBM announced what was then called DOS 5," says Myers. "It was to do two things: multi-tasking and running very large programs. Lotus had a release of *1-2-3* with a code size that was bigger than release 1A, and they had people with spreadsheets that were not going to fit inside 640K. So, much to their credit, they came up with the idea of enhanced expanded memory, which brought mainframe paging techniques down and added that to the spec.

"What that did for DOS was allow multi-tasking beyond 640K. It allowed programs that were larger than 640K. That was the first invention, and lately there's been another invention — a DOS extender for 386 machines. It allows people to write 386 protected mode programs, which can be as huge as they want and still run on DOS. With *DESQview* that means you can be running these gigantic programs side by side with DOS programs, take advantage of EMS as well as programs that were written so long ago they don't (use EMS). Both these developments lengthened the life of DOS. If you didn't have EMS to get around the 640K barrier or double EMS 4 to get around the multi-tasking, then you'd have to have a new operating system."

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THE ARRIVAL OF OS/2

Of course now we do have a new operating system in OS/2. But despite the hoopla, Myers doesn't think that poses a problem for Quarterdeck and *DESQview* (which will not run under OS/2).

"I don't think OS/2 is changing things at all, because the bulk of the machines out there are DOS machines," she says confidently. "It's just another option. (There won't be any effect) for a few years. There are something like 10 million 8086 machines, and people just aren't going to throw them away.

"A power user may get an OS/2 machine. It's like one of those fridges with an ice maker in the front. I'd love one but that doesn't mean I'm going to go out and get a new fridge — at least not until the one I have now craps out. Or it's like cars. General Motors built all these big cars. They were expensive and took a lot of gas but you could go really fast. That's like OS/2. It takes a lot of disk space, a lot of memory, and it gives you some power, but it costs a lot of money.

"DOS will be around for a long time. OS/2 represents an evolution of where software is going, but people will look at what you can do with it and see what it costs for memory, compatibility and upgrades of software. And then they'll see they can do the same thing in DOS. OS/2 is not a threat."

And just as *TopView* created an awareness of multi-tasking, OS/2 has made people hungry for that potential now, resulting in a number of outside developers looking to *DESQview* for spin-off applications. While Quarterdeck is working on OS/2 compatibility, they're taking advantage of its techniques for use in DOS.

"When we built in the *TopView* API (section of *DESQview*), it was (based on techniques) done by these mainframe programmers at IBM who understood inter-task communications, shared programs, spawning of subtasks, spawning of programs," she says. "That's all the stuff that's in OS/2. What's happening now is that as people are evaluating OS/2 and see what the techniques are, they're looking at *DESQview* and seeing that they can have a workstation of several programs and have the exact same capabilities. And because *DESQview* has menus that can be customized, they can easily make their workstations on DOS just like their workstations on OS/2. They can have work stations in OS/2 as well as DOS, doing the same thing.

"We've got a lot of companies now that are coming to us for developer's tools. OS/2 gave an appreciation for the capabilities inside *DESQview* that already existed, capabilities that we weren't even pushing. It was sort of a chicken-and-egg thing."

The demand for API tools started last year and resulted in Quarterdeck's recent release of five new programs (an assembly language reference, a C library, a debugger, a menu designer and a pull down menu designer). The upcoming developer's conference in early August is a direct result of this sudden interest in *DESQview*-specific spin-offs. Parenthetically, Quarterdeck's catalogue also includes "Quarterdeck Expanded Memory Manager" (for 386 and PS/2 machines), and "Companions I" (four memory resident utility programs — Link, Notepad, Calculator, Datebook).

WINDOWS VS. DESQVIEW

It's quite a full plate for a company whose niche is admittedly narrow. And specificity is by no means a guarantee of success. When *DESQ* first hit the stores, it soon had rivals in the form of Visicorp *Vision*, *TopView*, *Windows* and (to a lesser extent since it's not a true multi-tasker) *GEM*. And over the years it's come down to a head-to-head battle between Microsoft and Quarterdeck.

"The odds were just extraordinary," Myers says. There's Microsoft having signed up every OEM in the country. There was no one to sell to except retail. But my assessment was that *Windows* was slow. My assessment was that *Windows* was *DESQ*. It was big and it was slow. And in the initial version it wasn't running old programs, so I thought we had a chance.

On Microsoft and Windows: "If you're competing in a normal niche, everybody has equal odds. Maybe somebody's a little richer but they don't have the blessing of IBM, the thing that says 'We are the future.' Well, maybe you say you're the future, but prove it. We're going to give you a run for your money anyway."

"But they had so much money. We had money to live on but no money to promote or compete on the scale they could. Plus they had the IBM connection. If you're competing in a normal niche, everybody has equal odds. Maybe somebody's a little richer but they don't have the blessing of IBM, the thing that says, 'We are the future.' Well, maybe you say you're the future, but prove it. We're going to give you a run for your money anyway."

And that's just what Quarterdeck has done. They learned early on that one key to making it in the multi-tasking world came down to one basic issue: compatibility.

"There's not one standard, no two computers with the same hardware and software components," she notes. "And that was what was great about the computer industry — you could mix and match. If you wanted VGA, you got it. If you wanted Hercules, you got it. If you found some software that touched your fancy, you got it.

"We started doing compatibility (research) in 1983 and have been doing it ever since. I anticipate that people haven't begun to comprehend the (compatibility) nightmare that will come with OS/2. You have to get OS/2 from the hardware manufacturer and that's okay if you're talking about a pure computer, but it's not fine if it has 17 other bits and pieces — which in our experience is most of the time."

Compatibility was one of the early criticisms of *Windows*, she adds. The first release wouldn't run existing programs, a problem that has since been corrected. One might question the desirability of staying in old programs. True, habits are hard to break, but why not upgrade?

"Because you don't have a lot of money!" Myers guffaws. "Because you want to spend your money going to Hawaii! If you look at our registration cards you'll see we sell a lot to state and local governments. When it comes to individuals we sell to a lot of doctors. That's when I knew (who bought *DESQview*): people that don't want to spend money!"

Besides the initial inability to accommodate old programs, *Windows* was also noticeably slower than *DESQview*. While the recent release of *Windows* for 386 machines performs better, *DESQview* still has the edge. And there remains one glaring difference between the two that has not changed: adaptability to design.

"With *Windows* you're making this commitment you're buying into," says Myers. "You conceptually think through your problem, plan your program and design it (to fit). *DESQview* is backwards from that. You take what you've already done and make it work."

SELLING THE CONCEPT

While *DESQview* seems to hold all the cards in the multi-tasking game, the question remains for many users, Do I *really* need it? It's the same question that has appeared repeatedly in the computer industry. Each new "revolutionary" development has always been met with some hesitancy by the general user. And multi-tasking has a power-user's aura about it that scares some people away.

"It's like what we faced when we told people about word processing (ten years ago)," says Myers. "It's a concept sell. I think the fear of multi-tasking is still there to some extent, but you see a lot of situations where there's a dumb user who has always had *DESQview* and doesn't think anything of putting up their directory while running the word processor in the background. They think that's how a computer works. But once you take it away from people, they have

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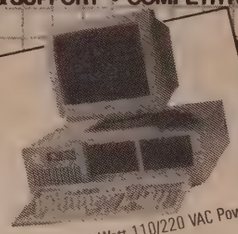

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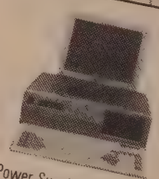

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"(The most important feature) is that it accommodates to anybody's habits. You don't have to conform to it. *DESQview* allows me to have a messy computer the way I have a messy desk. I keep my data base open all the time. I have 1,977 names of people I've had dealings with over the years in there. I also have a list of 167 things I have to do. If someone calls I can pop into the data base and take down the name, move over to *Paradox* for a report, get an idea and jump into the notepad, write it and move it into *Ventura Publisher*, and then, while it's printing, I'll go on to something else. I may have two notepads open at once. By the end of the day I may have seven windows open. Multi-tasking is not something you want all the time — just like windows. You just want those features randomly. The idea is that when you do want them, they're there for you. And once you're used to being messy, it's hard to be neat."

Of course there is another solution for the "messy desk" syndrome: integrated software, what Myers calls "the Swiss Army knife approach." However, there are two things wrong with most integrated packages: usually they are excellent in one area and poor in others — a great word processor but a shoddy notebook or a cumbersome calendar. And don't even dream of having a data base as massive as *dBASE* or a spreadsheet as powerful as *1-2-3*.

THE ULTIMATE SOLUTION

While obviously happy with the latest version of *DESQview* and its associated programs, Myers notes that there is still room for improvement — mainly in the field of memory.

"Something that a lot of our resources go into is trying to get *DESQview* out of that critical 145K," she says. "I'd love to find the magic that would get it completely out of the 640K on a standard 8086 machine (as is possible on a 386). With an EMS 4 board and CGA or monochrome, you can get it down to 0K or 10K. On EGA with 286 it's about 40K with an EMS 4 board or an AST double EMS board. The ideal configuration for *DESQview* is with two megs of memory with any EMS 4 board or double EMS board."

For many people who have purchased clone machines with extended memory, there's been a problem running *DESQview*, she concedes. That's because the memory is dumb. And, for a limited time, Quarterdeck is offering a solution for dumb memory — an All Charge Card that can be plugged into an AT class machine to transform regular clone non-smart extended memory into EMS 4 memory for multi-tasking. (The cost ranges from $200 to $260, depending on configuration.)

Quarterdeck's reliance on EMS memory is what prompted the company to hook up with AST for two years in a bundling deal that had the program going out with various AST boards. While Myers says it was a good strategic move at the time, the deal is now over.

"If you look at our registration cards you'll see we sell a lot to state and local governments. When it comes to individuals we sell to a lot of doctors. That's when I knew (who bought DESQview): people that don't want to spend money!"

"I think it's important to be the one supporting the product," she says. "It's better to have people buying the product and recognize the value of it rather than have it being given away. There's a psychology there that's important. There's an article on the wall out there that talks about the federal government being the largest owner of *Windows* products — but of course they're all sitting in a government warehouse somewhere. That's not what you want."

It's certainly not what she wants. And until some must-have program emerges for OS/2, it seems likely that *DESQview* will be sitting just where it belongs — nestled quietly in the memory of nearly 1/10th of all the PCs running. The two QEMM (Quarterdeck Expanded Memory Managers) products which shipped last year both incorporate the upgraded LIM-EMS version 4.0 memory spec (making them essential add-ons for 386 machines or the new IBM PS/2 machines with their bank-switching architecture). With a foot securely in the door of the new world (if not the operating system), it looks like Thérese Myers may have to start looking for another blank wall to fill. (Quarterdeck, 213/392-9701.) □

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Image Libraries For Freelance Plus

By Woody Liswood

The biggest problem we all face in using Freelance for presentations is that we soon use up the set of images which came with the package. Now that there are libraries of images available, I can pick just the right illustration to make that text-based slide interesting to look at.

With the continuing popularity of Lotus *Freelance Plus*, several companies now offer libraries of images to supplement the limited library that *Freelance* comes with.

In addition to being able to fix up Lotus 1-2-3 graphics, *Freelance Plus* contains a small charting function and the ability to create drawing and text material. It has a multitude of fonts and works with a wide variety of graphic output devices such as plotters, printers, screens, film and high density film matrix printers.

The biggest problem we all face in using *Freelance* to create overhead slides and other images is that we soon use up the set of images which came with the package. Now that there are a few libraries of images available, I can pick just the right illustration to make that text-based slide interesting to look at.

FreelanceMaps

FreelanceMaps is a good place to start. It consists of two packages — images for the USA and for the rest of the world.

For the USA, you can get all of the states individually, grouped together in a single US map, and add cities and state names as needed. If that doesn't do it, each state is also a separate image, and within each state you can have county lines. Within these counties you also get city names. If you like mail, each state can be divided into the U.S. 3-digit ZIP Codes. And, for the politically aware, the states can be divided by congressional districts. Also available are MSAs (Metropolitan Statistical Areas) and PMSAs (Primary Metropolitan Statistical Areas). And, if you need even larger groupings, *FreelanceMaps* supplies CMSAs (Consolidated Metropolitan Statistical Areas). The package contains 257 MSAs, 23 CMSAs and 78 PMSAs.

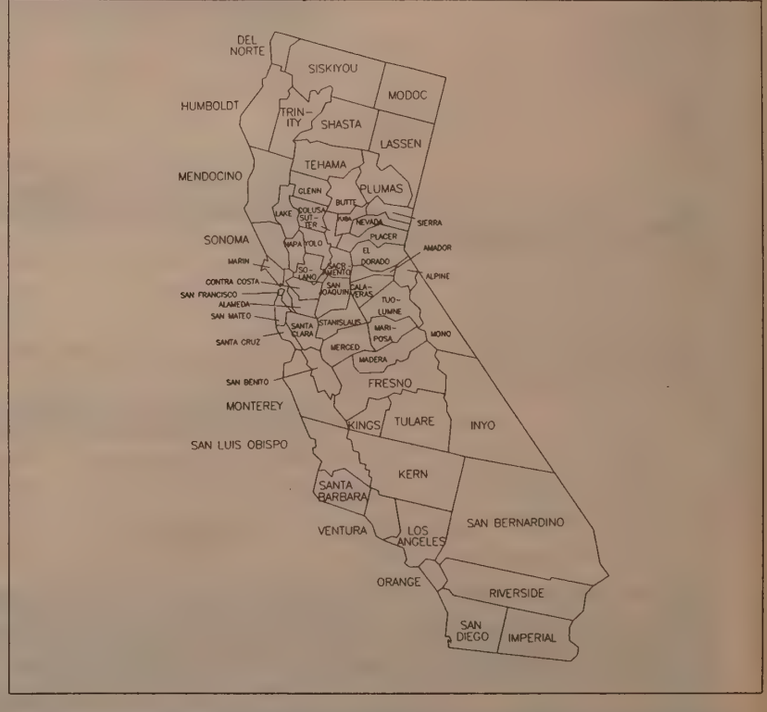
The areas are all polygons when read from the disk, so you can color them individually. They are also drawn to the same scale, so you can call them, as needed into *Freelance Plus* page 2, then copy them to page 1; after copying you will find that they are in the appropriate physical location for the state you are working with.

For the rest of the world, the package is not as detailed. You do, get the world, each of the continents, and, within each continent, the recognized national boundaries. Canada also has the province boundaries.

Bitfolio

Of all the library image packages, *Bitfolio* has the most images with the best quality for the best price. For $250 you get over 200 images. Each image is provided in two files, one optimized for a pen plotter and the other optimized for a high resolution matrix printer. The entire package occupies over four megabytes. The plotter files all have the extension pen and the matrix files have the extension of SLD. If you are not going to use a matrix device to print the slides, then just don't copy them to your hard disk.

For the most part, each *Bitfolio* file contains a single image. Some contain more than one. There are a number of slides which can be used in sequence (such as a runner starting, sprinting, and crossing the finish line) so you can build your presentation in a logical manner. The pen slides produce quality images on a pen plotter as well as an HP LJ II printer. *Bitfolio* uses the pen colors located at the high numbers from the



Freelance Maps from Lotus includes state and county maps, with areas identified.

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Freelance menu, so you may want to select and recolor some slides to get the appropriate colors with your plotter.

Picture Pak

MGI currently produces three separate sets of library images. At $150 per set, they are somewhat more expensive than the *Bitfolio* images. The three sets are *Executive & Management*, *Finance & Administration*, and *Sales & Marketing*.

The documentation contains an abominable copyright notice which says that you must include a notice in each presentation that the slides were produced by MGI graphics. MGI has since told me that they have changed their policy and that a user does *not* have to include that copyright notice in each slide, but make sure you personally check before you create any liability for yourself or your organization by using the MGI slides.

We received the *Executive & Management* set for testing. It contained about 70 files. Half of those files contained 12 icon type images similar to the actual *Freelance* libraries.

The *Executive & Management* module had six files which were nothing but 12 words in different typefaces. I found this less than useful, and I felt some resentment for finding such things in the file set, considering the cost of the set and the need for additional images; words, after all, can be created using the many fonts already provided by *Freelance*.

Bitfolio offers images optimized for plotter or matrix printer output.

The quality of the images was good. They were optimized for a HP LJ device and needed some work to be adequately produced on a pen plotter, but the adjustments required nothing out of the ordinary and was accomplished with no unusual problems. The *Picture Pak* images are not of the high graphic quality of the *Bitfolio* images, but there was no duplication between the two sets; both, therefore, would be useful additions to your library.

Macrosoft

The *Macrosoft* library contains a smaller set of images, no text, which have been produced by an artist working within *Freelance*. They are the least expensive of the library sets, and contain fewer images than either *Bitfolio* or *MGI*. If you wish to check out this library, you can download a sample set from the LOTUSGRAPHICS forum on CompuServe.

Summary

All of these libraries contain acceptable images to increase the flexibility and value of the *Freelance Plus* program. If you, as I, produce slides for presentations and are searching desperately for ways to make those presentations better, more visually attractive, and generally keep your audiences attention, any of the libraries will be a welcome addition to the program. If you can afford it, you should purchase all of them. □

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Computer-Assisted Music

Intelligent Music's Graphical Interface Makes It Easy

By Warren Sirota

The time: ten minutes into the future. The place: your living room. You turn on the stereo system, but instead of putting on a record or a CD or a tape, you turn on the Miraculous Music Maker. The buttons on the front panel light up. Because you had a hard day at work, you press the button marked "ahhh...", bypassing the other buttons ("urgh!!", "YAY!", and "Oh?!?" among them). Or perhaps you choose to mix a little Oh?!? with your ahhh...Music begins to drift out of the speakers, different music each time, taking you where you want to go.

Okay, now count to five and wake up. This scenario is far-fetched, but the idea of using powerful personal computer-based tools to make music on the basis of high-level constructs is not far-fetched at all. In fact, it's here now. And although many of these tools are languages which require a high degree of commitment to learn and use, there are also graphically-oriented programs which run on Macintosh and Atari computers to make some of these techniques accessible to a broader range of users. I'm going to describe three programs available from Intelligent Music, called *Jam Factory*, *UpBeat*, and, enigmatically, *M*. All of these products give you high-level control by asking you to think of music as repetition with variations.

Repetition is one of the most important elements of music. Rhythm could not exist without repetition, and tunes could not be made to stick in our conscious or subconscious minds without it. And what are computers good for? Repetitious tasks, right? It sounds like a perfect match, and musicians have not been slow to catch on.

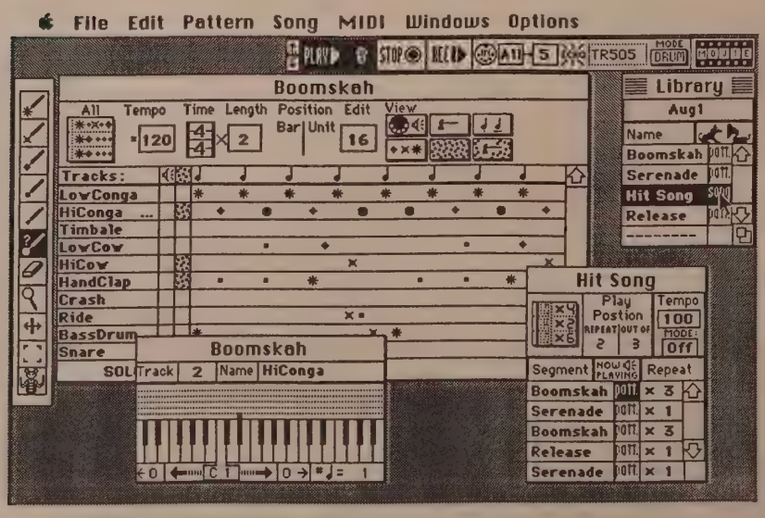


FIGURE 1:
UpBeat's main screen. The set of tools on the left includes a variety of mallets which you can use to place hits on any of the beats or subdivisions of the beat shown in the main pattern window (called Boomskah).

But in the process of doing so, they, and their discerning listeners, have discovered a horrible truth. If repetition is performed in a literal, machine-like fashion, all the life can easily be drawn from the music. When humans play, each repeat has some variation to it, whether intended or not. It is impossible to play the same note in exactly the same fashion at the same rhythmic point (down to the millisecond or so) twice, let alone time after time. And now that we have machines that can repeat mechanically, it turns out that such repetition is undesirable.

So what do we do? It's ironic that a primary ingredient in getting an acceptably humanized pattern out of a machine is to program in distortions or perturbations. If you have a snare drum that's supposed to hit on beats 2 and 4 of every measure, for instance, make it hit a little before beat 2 sometimes and a little after beat 4 sometimes. Not enough to vary the rhythm, but just enough to counter the deadly boredom of utter monotony. And while we're at it, let's have it hit a little more loudly sometimes than others.

Unfortunately, this kind of subtle distortion is difficult to accomplish with most "traditional" sequencer programs. Such programs, which are like tape recorders for the MIDI messages that control synthesizers, make it easy to program repetition, but impossible to program variation. Intelligent Music's programs are designed for just such tasks.

UpBeat

UpBeat is a drum machine programmer; i.e. a program that sets up patterns for drum machines to play. All drum machines have built-in facilities for building drum patterns, but these facilities are much improved upon when they're removed from the drum machine and placed in the computer. This is because:

1. You can sometimes run out of memory in the drum machine and have no place to put your pattern without erasing a different one.

2. It is much easier to manipulate patterns through a full-screen graphical interface than through a 16-character by 2 line LCD display.

3. Sooner or later the battery in the drum machine is going to give out and all of your patterns will disappear, losing many hours of work.

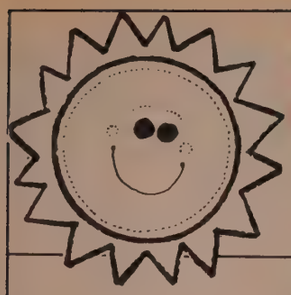
UpBeat fixes all of these problems, and more, by allowing you to introduce random variations not possible with the drum machine's own sequencer.

Figure 1 shows *UpBeat*'s main screen. The set of tools on the left includes a variety of mallets which you can use to place hits on any of the beats or subdivisions of the beat that are shown in the main pattern window (called Boomskah). Each of the mallets creates a strike with a different MIDI velocity, producing louder and softer hits. And, in fact, each mallet can be set up to produce a hit with a slightly different intensity each time it's played; you can also use a purely random mallet.

UpBeat also allows you to program drum fills (fast drum licks which usually come at the end of musical phrases to kick up the energy level for the next verse) allowing for random variation.

All of the patterns that you create are stored in the library, which also stores the songs that you create by stringing together the patterns.

When you're done setting up the drum patterns for your songs, you can make a "movie" of the performance and save it to a MIDI file. Since movies and MIDI files are an



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important part of the Intelligent Music concept, let's take a moment to discuss them.

Movies And MIDI Files

Just as ASCII (or text) files are the lowest common denominator for transferring text files among a number of different programs which may have different uses for them — such as word processors, databases, and outline processors — so MIDI files are a common format that MIDI programs can use to exchange information. The actual format is too technical to go into here, but we can say that it consists of certain standardized header information followed by timing information and MIDI codes. The format was developed by Dave Oppenheim of Opcode Systems, another well-known MIDI software manufacturer, and has caught on as a de facto standard, although it is not part of the official MIDI specification.

Many sequencer packages support this format, including OpCode's *Sequencer* 2.5. Unfortunately, one of the most popular sequencers, Mark of the Unicorn's *Performer*, does not yet understand MIDI files. Rumors abound, however, that a program exists that can convert between *Performer* and MIDI file formats.

Intelligent Music fully supports the MIDI file formats. All of these products allow you to create "movies" of your performances, which are simply sequencer-type recordings of all the timings of all the MIDI messages that were sent to your synthesizers. Then, these movies can be saved to disk as MIDI files, to be read either by another of the Intelligent Music programs or by any other programs that understand the format.

To the hacker's delight, Intelligent Music goes a step further in its support of MIDI files. Not only do all their products include a full definition of the MIDI file specification, but they also contain sample code to help the homebrew coder to process these files.

M

The easiest way to understand *M* is to forego description and jump right into an example, or thought-experiment. *M* contains four "patterns," which can each contain a set of notes or chords. When you start up *M*, all the patterns are empty. You have to feed them before *M* will do anything. (See Figure 2.)

So you set pattern 1 to record, and you play a couple of dozen notes on your controller (keyboard, guitar synth, wind controller, or MIDI drum pads). Then you click on the Play button and you hear the notes you played come back out, only they're different. First of all, the rhythm is totally regular, all quarter notes, regardless of how you played in the notes. Secondly, the accents are also different — every 4th note is accented. Something strange has happened.

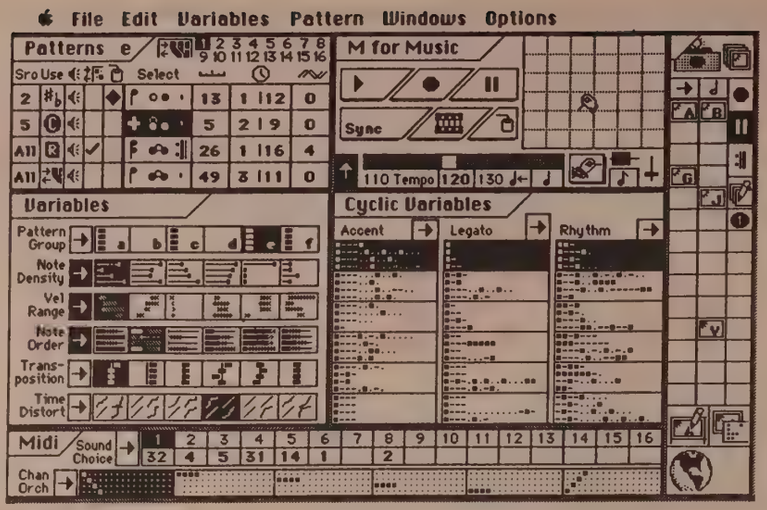
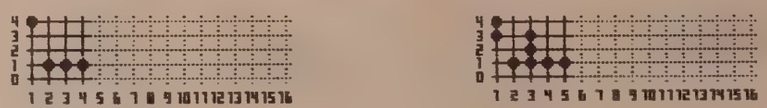


Figure 2: M contains four "patterns," which can each contain a set of notes or chords.



M's default, shown in figure 2a, is that the first note in every group of four is accented. Figure 2b shows a setup where the first and third notes in every group of five is accented, with the first note getting either the highest or second-highest accent level and the third note getting a medium accent.

In fact, the notes that you played in are nothing but algorithm fodder for *M*. The timings and the velocities are all gone, to be filled in by the program in varying ways that you control from the computer screen. The timings have all turned to quarter-notes, which can be altered by changing the numbers under the icon of the clock in the "Patterns" window. The accents are controlled by the "cyclic variable" for Accents. The default, shown in figure 2a, is that the first note in every group of four is accented. Figure 2b shows a setup where the first and third notes in every group of five is accented, with the first note getting either the highest or second-highest accent level and the third note getting a medium accent.

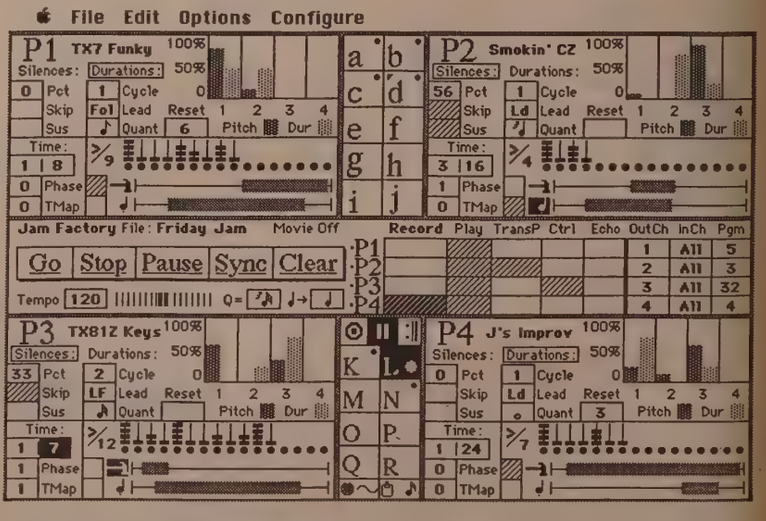
This starts to give a flavor of the music that is natural to produce with *M* and *Jam Factory*. Think of streams of pulsing notes or chords, which can move along at fast or slow rates with precise mathematical interrelationships, where each note can have accents that vary with some randomness within a range that you can control rather precisely. *M* provides several ways of introducing more complex rhythms (as opposed to just pulses) — either by using the Note Density variable to cause silences to be interspersed with the pulses, or by using the Rhythm cyclic variable.

The other main variations that *M* will provide for you in a random yet controlled manner are Legato, Note Order, Transposition, and Time Scaling. Legato gives you control over how long each note is held. Since it's a cyclic variable, you can set up repeating patterns of Legato variation with each step having its own range of choices. Note Order allows you to tell *M* to play back the notes that you played in a fully- or partially-scrambled order. Transposition is a variable that is used to transpose each of the four patterns independently. Time scaling lets you add subtle and not-so-subtle temporal variations that fall outside the pale of the regular rhythms that *M* would otherwise tend to produce.

We've touched on many of the basic features of *M*, but not their use in a performance context. *M* is set up to let you store six of each of a lot of things — pattern sets, transposition schemes, note densities, etc. — and to switch among them with a click of the mouse. When you find a set that you like, you can take a "snapshot" of all the settings at once and save it (to a position on the right side of the screen). This allows you to retrieve an entire group of settings with a single click. You can even quantize the snapshot retrieval so that it happens on the beat, or at the beginning of the next measure, instead of at the instant you click.

I found the snapshot feature to be extremely useful for a live theater scoring project. I want one section of music to play underneath the first part of a speech, a second to play under the second part, etc. The music is designed to be tightly tied in to the speech, but the timing of the speech cannot be expected to be identical night after night. *M* makes the performance of this music easy, by letting me click on snapshot A at the beginning of the speech, on snapshot B at the cue for the first transition, then snapshot C, and so on. Since I've set up the transitions to always be quantized to the beat, it can't sound awkward if I don't hit the mouse at precisely the right instant.

M has two other recording facilities: Slide Shows and Movies. You already know about movies, which are used to create MIDI files. A slide show is a sequence of snapshot clicks and variable clicks that can then be replayed.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P2 Smokin' CZ
Jam Factory File: Friday Jam Movie Off
Record Play TransP Ctrl Echo OutCh InCh Pgm
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Figure 3: Jam Factory is quite similar to M. However, it has four "Players" instead of four "Patterns."

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M also has a "conductor" facility, which allows you to tie any of the variables to a conducting baton that moves through a grid in the upper right-hand corner of the screen. This allows you to select, for instance, pairs of variables which will move together. I have yet to find this facility of much use, however, because of the near-immediate accessibility of all variables onscreen.

Jam Factory

Jam Factory is quite similar to *M*. It has four "Players" instead of four "Patterns," but it still allows you to play music into each of the players and control accents, legato patterns, rhythms, note densities, etc. (See Figure 3) In some ways it is more limited than *M*, in some more sophisticated.

In the area of limitations, the primary one is that *Jam Factory* does not have 6-position variables. So, instead of six sets of four patterns that can be in M at once, we only have one set of four Players available in *Jam Factory*. Instead of being able to click on a single box and have all accent patterns change at once, as in *M*, we have to change them one at a time in *Jam Factory* (unless we do it in the context of a movie, where there's a technique for handling this). Also, *Jam Factory* doesn't have the conductor facility.

Sequencers, which are like tape recorders for the MIDI messages that control synthesizers, make it easy to program repetition, but impossible to program variation. Intelligent Music's programs are designed for just such tasks.

In the area of increased sophistication, *Jam Factory* has two extremely nice features. The first, which is one of my favorites, is called Scale Distortion. By setting up a scale distortion map, you can transpose your original input into any key. This is far from the simple "transpose all notes up a fifth" — it can actually transpose different notes by different intervals, so that your pattern can first be heard in F# major, then in C harmonic minor, then in any scale of your own design. The actual triggering of the transposition occurs when you play a note on your keyboard in "Control" mode. (Both *M* and *Jam Factory* have this mode, where many program functions can be controlled directly from your keyboard).

The second advanced feature of *Jam Factory* is its use of transition tables to randomize the notes and durations of your input. Whereas *M* provides three ways of randomization — none, cyclic, and totally random, *Jam Factory* uses a more sophisticated algorithm which uses statistical techniques to create melodies that are similar but not identical to the ones that you played in originally. You can, to some extent, determine the degree of similarity that you desire.

Summary

Music offers infinite possibilities, especially when computers can be used to remove virtually all physical limitations. Over the centuries, various forms and conventions have evolved to help give form and structure to these possibilities. The programs from Intelligent Music lend their own structure to the possibilities of music, and it is an original and productive one.

You cannot use these programs to produce any type of music that you can conceive, as you could, theoretically, with a general-purpose sequencer program. However, the programs excel at helping you create rhythmically sophisticated pattern-based musical structures which can be used effectively in the contexts of New Age, rock, minimalist, and Indonesian gamelan-influenced musics, as well as doubtless many other forms. The programs can even be thought of as musical productivity tools, allowing you to create substantial pieces of music without requiring much in the way of performance technique or lengthy editing of sequencer data. What is left for the musician to exercise in using these products? Not much — just imagination, taste, knowledge, orchestration, and devotion. □

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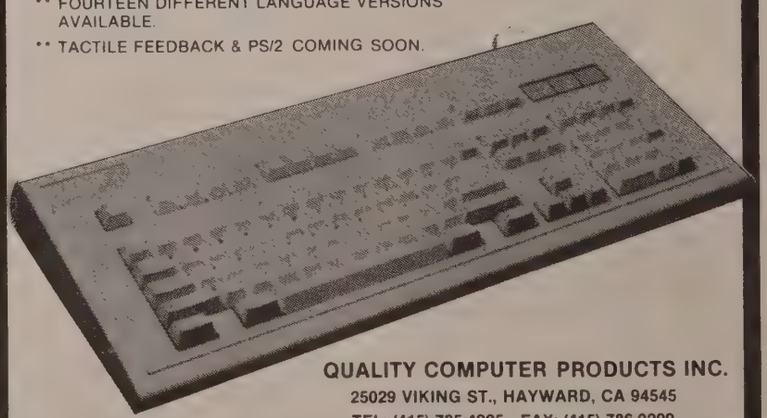

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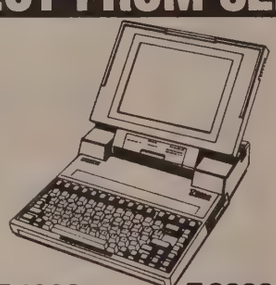

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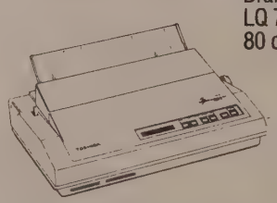

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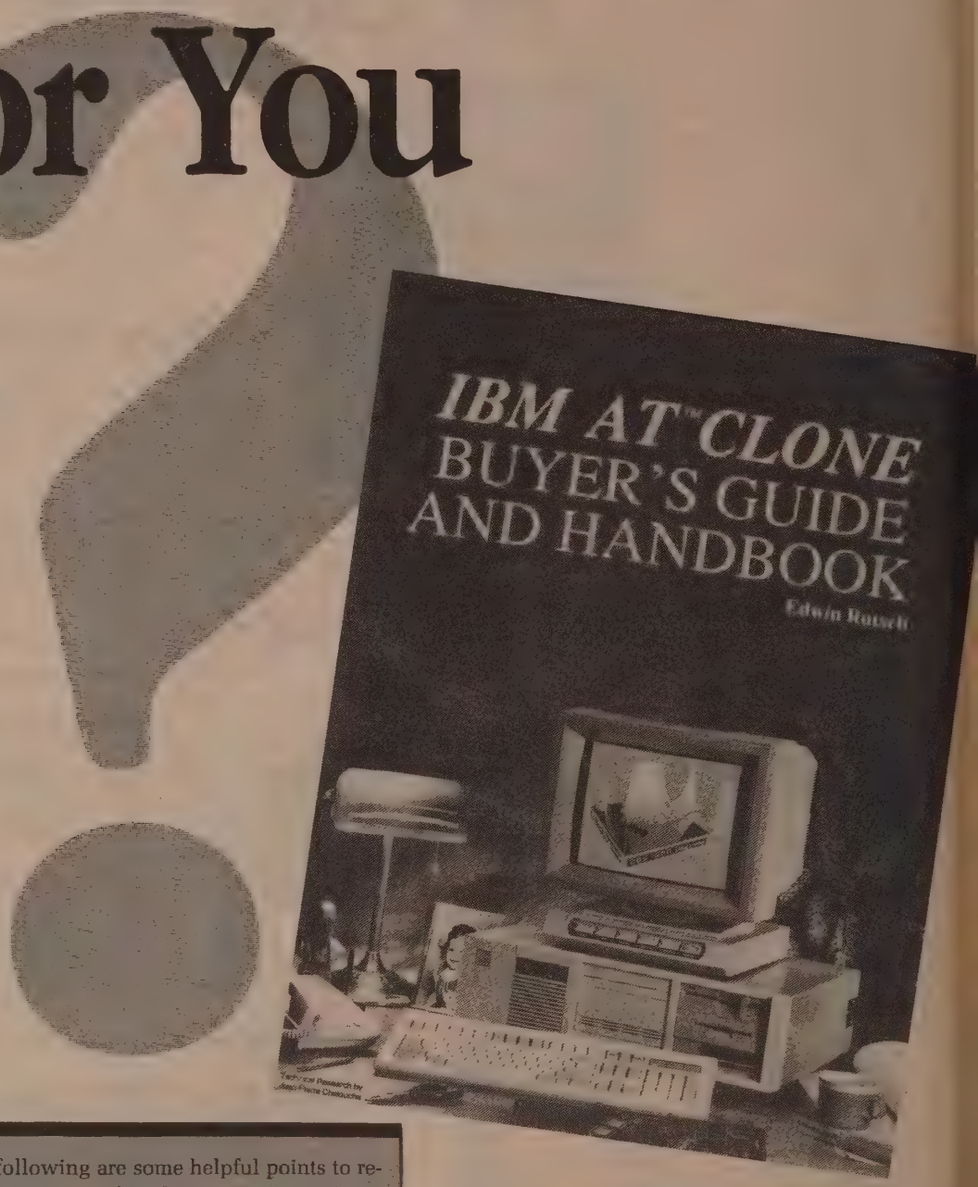

By Edwin Rutsch

There are basically three generations of computers for you to choose from if you are going with the IBM standard. They are the computers which use one of the three Intel-made microprocessors. The most basic difference between the three generations of computers is simply that each is based on a different microprocessor and therefore carries different capabilities. The purpose of this chapter is to help you choose the correct generation of computer for your needs and pocketbook.

If you are already convinced that you need a 286-based computer, the comparisons in this chapter will still be of benefit by helping you to better understand the capabilities of this machine.

Evaluating The 8088-Based Computer

Many people are in a dilemma about whether to go with an 8088 (XT type) or a 286 (AT type) computer. I feel there is still a very good case to be made for some users to purchase an 8088 rather than a 286-based computer. The following look at the pros and cons of the 8088 will help you to decide if you are one of those users.

Advantages Of The 8088

Basically, it is still valid to go with the 8088 if you want to save money. Approximately a two-to-one price ratio exists between the price of an AT clone and XT clone. In many areas of the country, a fully configured XT clone with monitor, two drives and 640K of memory can be purchased for under $550. This low price seems to create a strong motive for the home computer user (and especially for the first time buyer with a tight budget) to purchase this kind of computer.

An XT clone is definitely adequate for many uses. Some types of applications which can now be adequately handled by it include word processing, small database, small spreadsheet and telecommunications programs. The person who uses only simple applications software can find the XT clone quite adequate for these applications.

Disadvantages Of The 8088

Software programs are pushing against the limits of memory and speed that the 8088 has to offer. There is therefore not much room to grow. The 8088 will not, for example, be able to use the OS/2 software and all its extra features. It also has difficulty handling other large and complex graphic software which is starting to become available. The 8088 is relatively slow when compared to succeeding generations of computers.

Even though the 8088-based computer has reached its limits, those who purchase one of these

The following are some helpful points to remember as you read further:

8088 refers to both the microprocessor and to all the computers based on the Intel 8088 chip. This term includes such computers as the IBM PC, XT, XT clones, and compatibles. The **8086** chip is almost identical to the 8088 chip and is the central processing unit on which some compatibles as well as the IBM Personal System/2 Model 30 is based.

80286 (or simply **286**) refers to the microprocessor and to all computers based on the Intel 80286 chip. This term includes such computers as the IBM AT, AT clones, AT compatibles and the IBM Personal System/2 Models 50 and 60.

80386 (or **386**) refers to the microprocessor and all computers based on the Intel 80386 chip. This term includes such computers as the IBM Personal System/2 Model 80, along with all other 386-based computers.

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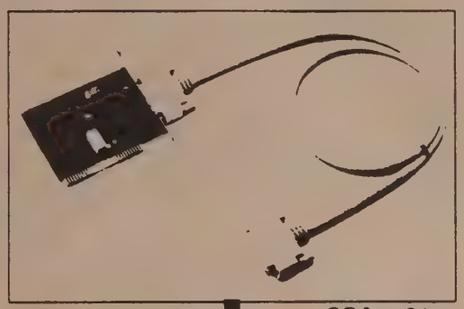

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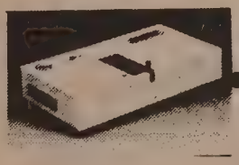

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computers will not necessarily have to lament their decision when they need a more powerful computer and software. This is because an XT clone can be upgraded to an AT clone by adding a new Baby AT motherboard. It could even be upgraded to a 386 computer, for that matter. The conversion to a 286 now costs about $450; however, in a year or two the cost will be under $200. The upgrade option will help breathe new life into any XT clone. If you decide to go with an XT clone now, I recommend reading *The IBM XT Clone Buyer's Guide*. It will help you select a computer which can be upgraded with the minimum of hassles.

Evaluating The 286-Based Computer

Computers that are using the 286 microprocessor are becoming increasingly popular, and sales of these computers are growing at a rapid rate. There are many good reasons why these computers are gradually becoming the predominant type of computer on the market.

Advantages Of The 286

It is important to remember that the 286 computer will continue to grow in capabilities. With the OS/2 operating system, it will be able to use large amounts of memory, which will allow for the use of more powerful and easier-to-use software. The average 286 computer operates at least two to three times faster than a 8088-based computer. This means that tasks can be done significantly faster. Prices are also dropping rapidly, thereby making them an ever more attractive option for the computer user.

There are many software programs and tasks which require, at least, a 286 computer to operate effectively. These include: OS/2; fast and complicated graphics (such as Desktop Publishing, Computer Aided Design and Computer Aided Engineering); large databases; complex spreadsheets; multitasking and multiuser situations. The 286 is therefore suitable for a wide variety of applications, and with it you will be prepared for most future computing needs you may have.

Disadvantages Of The 286

While the 286 computers have many advantages, these computers are no longer the cutting edge. This generation of computer will in time slowly be eclipsed by its successor, the 386 computer, which offers the promise of much greater features and capabilities.

Again, there is no need to worry about being left behind technologically with a 286 computer because it is possible to upgrade it to the next generation of computer very easily. At present, most 286-based computers are merely AT clones with 386 motherboards installed. All parts in the AT are usable with the typical 386 computer, so to upgrade can mean only replacing one part — the motherboard. I'll have instructions for doing the upgrade in the forthcoming *386 Computer Buyer's Guide And Handbook*.

Evaluating The 80386-Based Computer

With the great potential of the latest 386-based computers, should you consider the purchase of one of these instead of an AT clone? Let's take a look at some of the factors which should influence your decision.

The Advantages Of The 386

Presently, speed stands out as the 386's greatest advantage. The 386-based computers now available are certainly fast, but not dramatically so. The machines now available operate only 40 to 100% faster than the previous generation of computer.

The Disadvantages Of The 386

The possible drawbacks of the 386 start with the high price. The price difference between the 386 and 286 system is about two to one, so there is still a hefty premium to pay.

A hardware standard for 386-based computers has not yet been clearly established. It looks as though IBM's PS/2 Model 80 with the Micro Channel may eventually prevail as a hardware standard, but nothing is certain. Many other companies have released 286-based computers, but not all have followed the same design for adding expansion cards. So far, I have seen several expansion slot designs. If a standards war develops, then it would definitely make the purchase of a 386 less attractive. When buying a 386, you may end up with a computer that you paid a lot of money for, which cannot accept commonly available expansion cards.

While most 386 computers can use the same expansion cards as the 8088 and 286 computers, few dedicated 386 cards exist. There are actually only a few 386 memory expansion cards now available, and they do not fit in all machines. Expansion cards will not start to proliferate until a hardware standard becomes established.

Several software manufacturers offer operating systems to take advantage of some of the 386's capabilities. However, until a widely accepted operating system is available which takes full advantage of this computer's capabilities, the massive possibilities of the 386 will not be utilized. It may be several years before a dedicated operating system is available.

Until a standardized 386 operating system is available, little application software can be written for this computer. The capabilities are again underutilized. The 386 will, however, run all of the present software now existing for the MS-DOS operating system.

386 Summary

If speed is paramount and translates into money saved, a 386 is perhaps for you. The best advice for most users is to wait a year or more after any new product becomes available in order to let the bugs get worked out and a clear standard to be set. For example, the first version of the 386 microprocessor had a bug in the arithmetic function, and Intel had to replace thousands of faulty chips. Another example is that it was found that the commonly used Intel motherboard could not accept the 80387 math coprocessor. For the "pioneers" who purchased these computers, this was certainly an inconvenience.

Price Comparison

An important factor in deciding which generation of computers to purchase is the element of affordability. Figure 1 is a comparison of the relative price ranges between the three generations of computers at the time of printing this book.

Comparing The Technical Capabilities Of The 8088, 286 And 386

For those of you who would like to understand the technical differences of the 8088, 286 and 386-based computers in a little more detail, the following text compares these computers in terms of speed, memory, multitasking, multiuser and modes capabilities.

Speed Capabilities

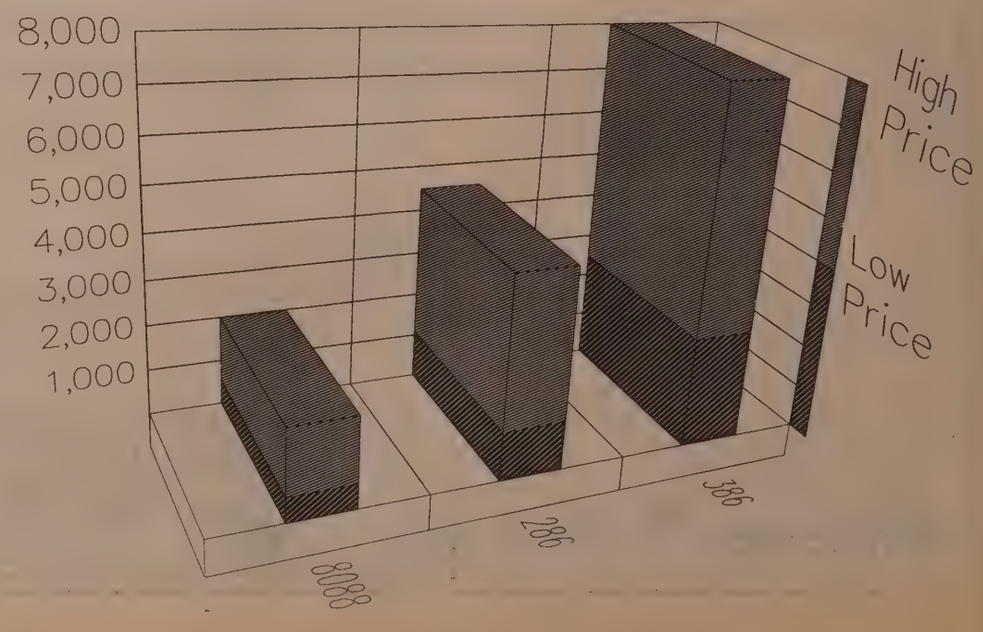
A faster computer can reduce the time you wait (while some task is being performed) from a few minutes to a fraction of a minute. Essentially, there are four factors which determine a computer's overall speed. These factors are as follows:

- clock rate
- "width" of data path
- overall efficiency of the microprocessor's design
- number of "wait states"

Before displaying a graphic comparison of the

FIGURE 1

Price Comparison of the 8088, 286, and 386 computers (in $)



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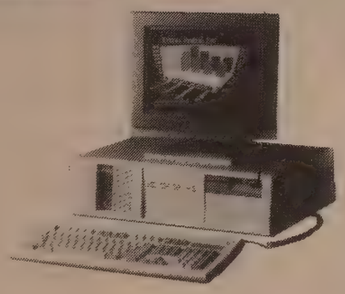

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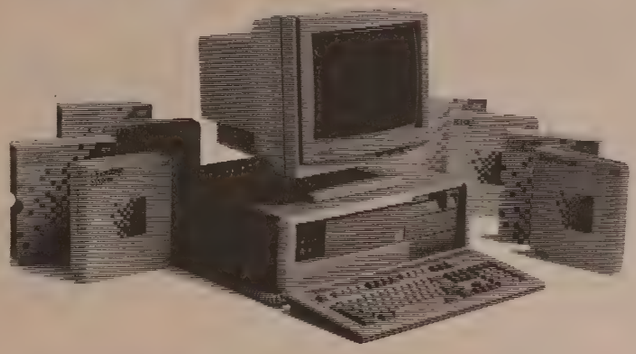

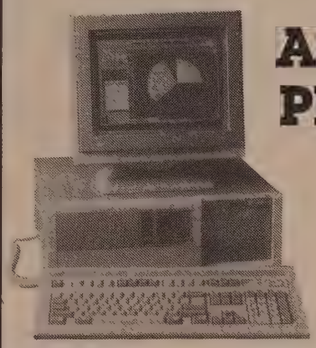

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speed at which different generations of computers can operate, each of these factors will be briefly examined.

Clock Rate

Inside the computer, a clock "ticks" at a constant rate. It is analogous to a metronome pacing the tempo of a piece of music. In the computer's case, the clock serves to pace the flow of data, and thereby assists in keeping order among all the circuitry. The faster the clock, the faster data can be processed. The clock rate is measured in megahertz (MHz) or "millions of cycles per second"; the higher the number of megahertz, the faster the speed. Each higher generation of computer can support a faster clock rate due to improved technology. There are also variations in the clock rate within each generation of CPU.

Data Path

The data path in a computer can be likened to a freeway; the more lanes, the more traffic that can be carried. The wider the data path, the more information that can be manipulated.

- 8088 computers have an 8-bit data path (8 lanes)
- 8086 computers have a 16-bit data path (16 lanes)
- 80286 computers have a 16-bit data path (16 lanes)
- 80386 computers have a 32-bit data path (32 lanes)

The majority of software now available has been written for 16-bit. Since the 8088 computers have only an 8-bit data path, the flow of data is reduced by about half. When 32-bit software becomes available for 386 computers, the processing speed will automatically be increased from two to four times, depending on the type of software. This extra speed is made possible by the larger data path.

Efficiency Of Design

A degree of speed is gained in each new generation of computers, merely due to improved efficiency of circuitry and overall design. Because the layout of the circuitry on the CPU is more efficient, the computer can process more data in less time. For this reason, the 286 chip is 2.5 times faster than the 8088 merely due to a better design. This means that a 8 MHz 286 is automatically 2.5 times faster than a 8 MHz 8088 chip. However, no difference in efficiency of design exists between the speed of 16 MHz 286 and a 16 MHz 386 chip, provided they are using the same 16-bit software.

Wait States

Wait states are placed between the CPU and RAM in an effort to slow down the transmission of data. They function similarly to pacing lights installed before a bridge or freeway—the lights turn on and off in an effort to regulate the flow of traffic. This process helps reduce traffic congestion, just as the wait state reduces congestion in the computer's memory. Wait states were devised to allow slower (and thereby less expensive) memory chips to be used. When there is no wait state, the advantage is that data flows directly to and from the memory without waiting. The lack of wait states and the use of faster memory chips can increase the computer's speed by about 30%. Figure 2 compares the speed of 286 computers, both with and without wait states using the **Landmark Speed Test** program.

There are actually several scales for measuring the speed of computers. The most accurate measures how many Millions of Instructions can be processed Per Second. This is referred to as MIPS. This measurement is used on all computers from mainframes down to microcomputers. However, the more common speed ratings you will see in advertisements are the **Norton SI** and the **Landmark Speed Test.** The **Landmark** test is often used because it displays a nice graphic representation of speed in megahertz relative to the AT. Figure 3 shows a printout from the **Landmark Speed Test;** first is an XT clone operating at 8 MHz, and second is an AT clone operating at 10 MHz 0 wait state.

Figure 4 compares the speed of the 8088, 286 and 386-based computers in megahertz relative to the AT using the same 16-bit software. (Remember, if 32-bit software were used, the 386 would be 2 to 4 times faster). Three different levels are shown. The first shows the speed of early computers using each chip operated. The second level shows the average speed at which computers currently operate, and the highest level shows the maximum speed capability of computers using each chip.

FIGURE 2

Computers speed with and without wait states		
CPU Clock Rate (in MHz)	1 Wait State (in MHz)	0 Wait State (in MHz)
6	6	8
8	8	10
10	10	13
12	12	16
16	16	20
20	20	26
24	24	32

Memory Capabilities

The term "memory" describes different forms of storing information. The two forms compared here are random access memory (RAM) and virtual memory. Before I go on though, it may be useful to explain how computer memory is measured. Figure 5 offers some handy definitions.

Random-Access Memory (RAM)

RAM comprises the computer's main memory and is used for the temporary storage of data in memory chips. Figure 6 compares the inherent capabilities of CP/M, 8088, 286 and 386 computers in terms of their ability to access RAM. (CP/M is included here to help dramatize the rapid increase in the ability of each generation of computer to access RAM.)

With more RAM available, larger and increasingly complex software can be used. An example of how the quantity of RAM can affect your actual computing would be to consider CP/M-based computers, which can access only 64K of RAM. This just barely allows the use of a word processing program. However, 64K of RAM is not sufficient to allow the use of a spelling checker or a thesaurus. The 640K memory in 8088-based computers opened the door for these time-saving programs. It also allowed the development of desktop publishing software. When the new OS/2 operating system makes available the full 16 megabytes of RAM for the 286, it will be possible to merge desktop publishing programs with especially powerful

FIGURE 3

The ***Landmark Speed Test*** on an 8 MHz XT clone, and on a 10 MHz, 0 wait state AT clone, and a 20 MHz 386, with 0 wait states

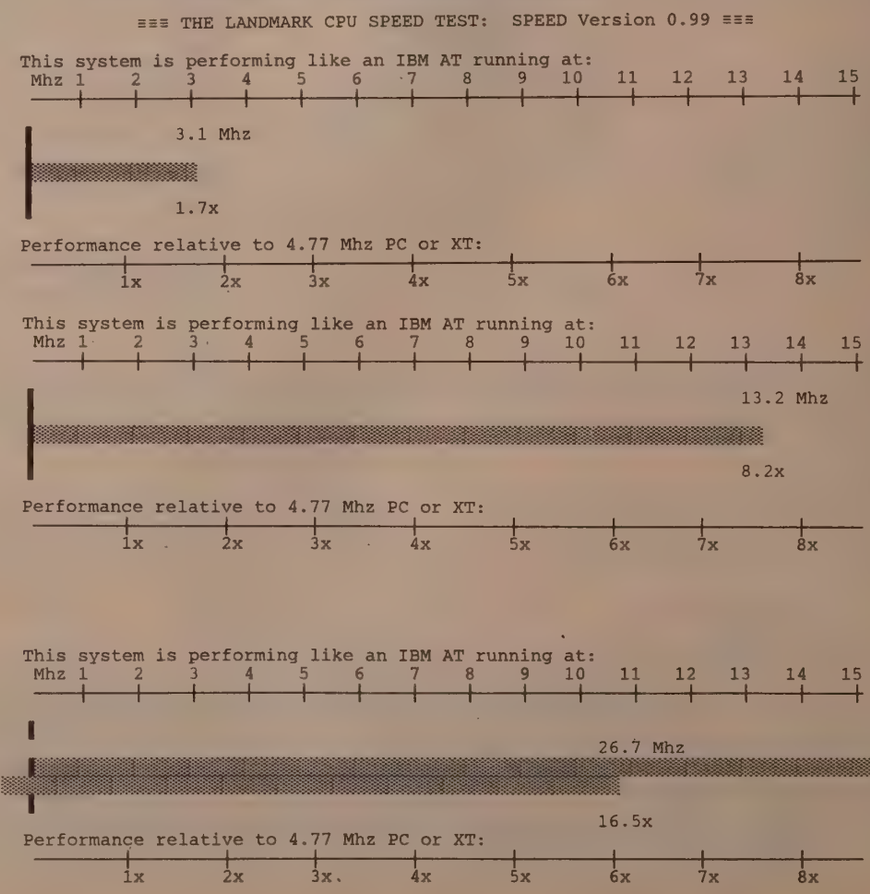
≡≡≡ THE LANDMARK CPU SPEED TEST: SPEED Version 0.99 ≡≡≡
This system is performing like an IBM AT running at:
Mhz 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
3.1 Mhz
1.7x
Performance relative to 4.77 Mhz PC or XT:
1x 2x 3x 4x 5x 6x 7x 8x
This system is performing like an IBM AT running at:
Mhz 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
13.2 Mhz
8.2x
Performance relative to 4.77 Mhz PC or XT:
1x 2x 3x 4x 5x 6x 7x 8x
This system is performing like an IBM AT running at:
Mhz 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
26.7 Mhz
16.5x
Performance relative to 4.77 Mhz PC or XT:
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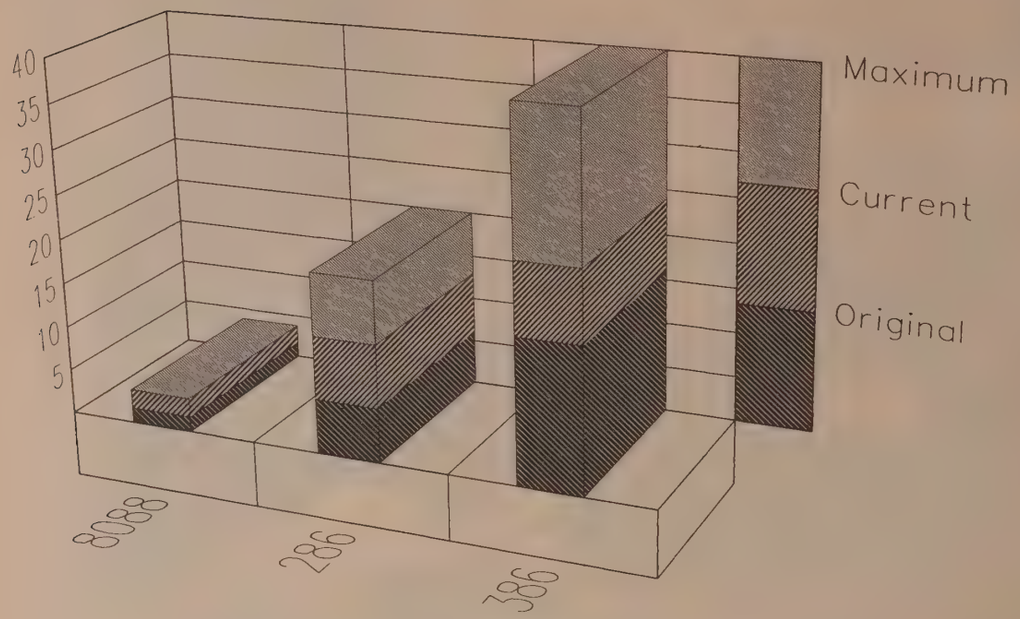
FIGURE 4

Speed Of The 8088, 286, And 386 Computers (In MHz)



word processing programs. Actual word definitions, which can be rapidly accessed, will also be incorporated into memory-resident dictionary and thesaurus programs. What the 4 gigabytes of the 386-based computer will be used for is anybody's guess. Perhaps there will be some wild artificial intelligence programs which directly translate human thoughts into perfect, informative and interesting text. That could be of enormous use to poor laboring writers.

Virtual Memory

As previously mentioned, a software program is dependent on the amount of RAM available. Greater amounts of RAM allow for larger and more sophisticated programs to be operated. Virtual memory (simplistically speaking) is a technique in which the computer accesses other memory, such as that on a hard drive, and treats it as RAM. Large programs are therefore not limited to the availability of random access memory. This technique is new for microcomputers, although it has been employed for years in large mainframe computers. Figure 7 compares the amount of virtual memory which each generation of computer will be capable of supporting when the proper operating systems are available.

Initially, virtual memory will not be of significance to the average user. The first uses will be for large and complex multitasking and multiuser applications. It will, however, eventually open the door to new types of artificial intelligence programs that offer far better human interfaces than does present software. For a program to operate with minimum effort from the user's point of view, it needs to access large amounts of data rapidly. An example might be a voice recognition program which needs to understand many spoken words in a wide variety of circumstances.

FIGURE 5

Definition of memory				
1 bit	=	the smallest unit of information understood by the computer; it is represented as either "1" or "0", (also "on" or "off").		
1 byte	=	8 bits	=	a character, i.e., A, 5, !, etc.
1 Kilobyte	=	1024 bytes	=	1/2 page of text
1 Megabyte	=	1,000 Kilobytes	=	500 pages of text
1 Gigabyte	=	1,000 Megabytes	=	2 full sets of encyclopedias
1 Terabyte	=	1,000 Gigabytes	=	2,000 full sets of encyclopedias!

Multiuser Capabilities

"Multiuser" simply means that you have two or more computers connected together which share information and/or peripherals. Generally, several computers are connected to one central computer (called a file server) which has a large and fast hard drive. The information contained in the fle server is then shared among all the other computers or terminals. Special software and hardware are required to connect computers together. As of today, however, there is no industry standard for connecting computers, resulting in much confusion for potential users.

The 8088-based computer is ill-at-ease with multiple users and for all practical purposes cannot act as a file server. The 286 and 386-based computers, due to their superior design, are a prime choice for use as file servers.

The number of terminals which can be connected to a 286 or 386 computer depends on the size and complexity of the software being used. While the number can vary greatly, generally speaking, approximately 10 terminals can be connected to a 286-based computer and up to 60 terminals to the 386-based computer.

For the average user, connecting computers is not an important issue. For the office environment, however, it could be a major advantage for efficient use of peripherals and the sharing of information.

Multitasking Capabilities

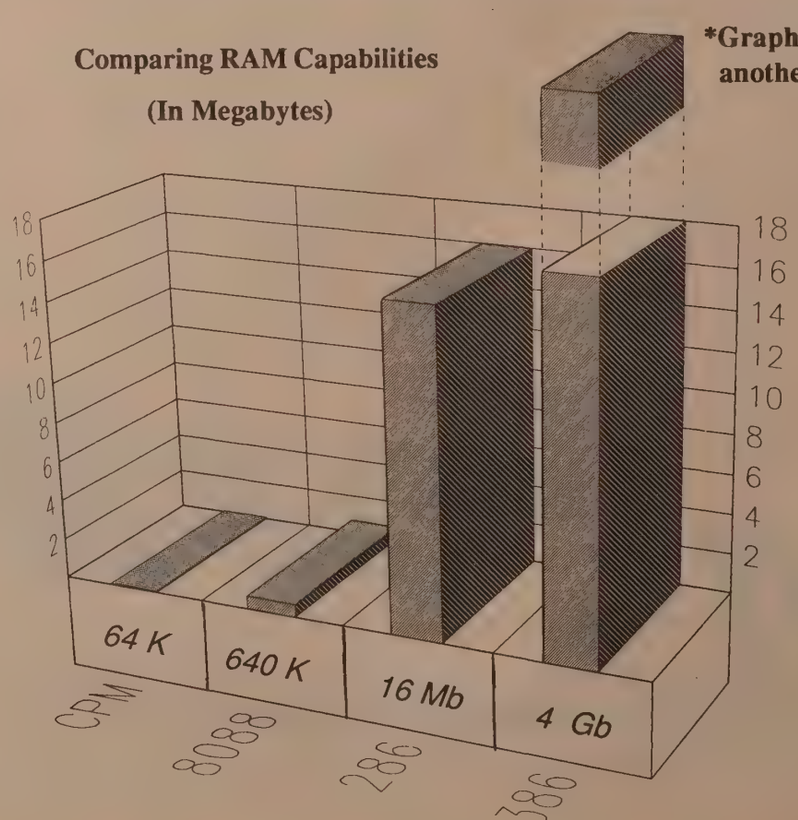
Multitasking means that multiple programs are operated at the same time by the computer. For example, while a database program is searching for a

continued on page 178

FIGURE 6

Comparing RAM Capabilities (In Megabytes)

***Graph continues another 41 feet up!**



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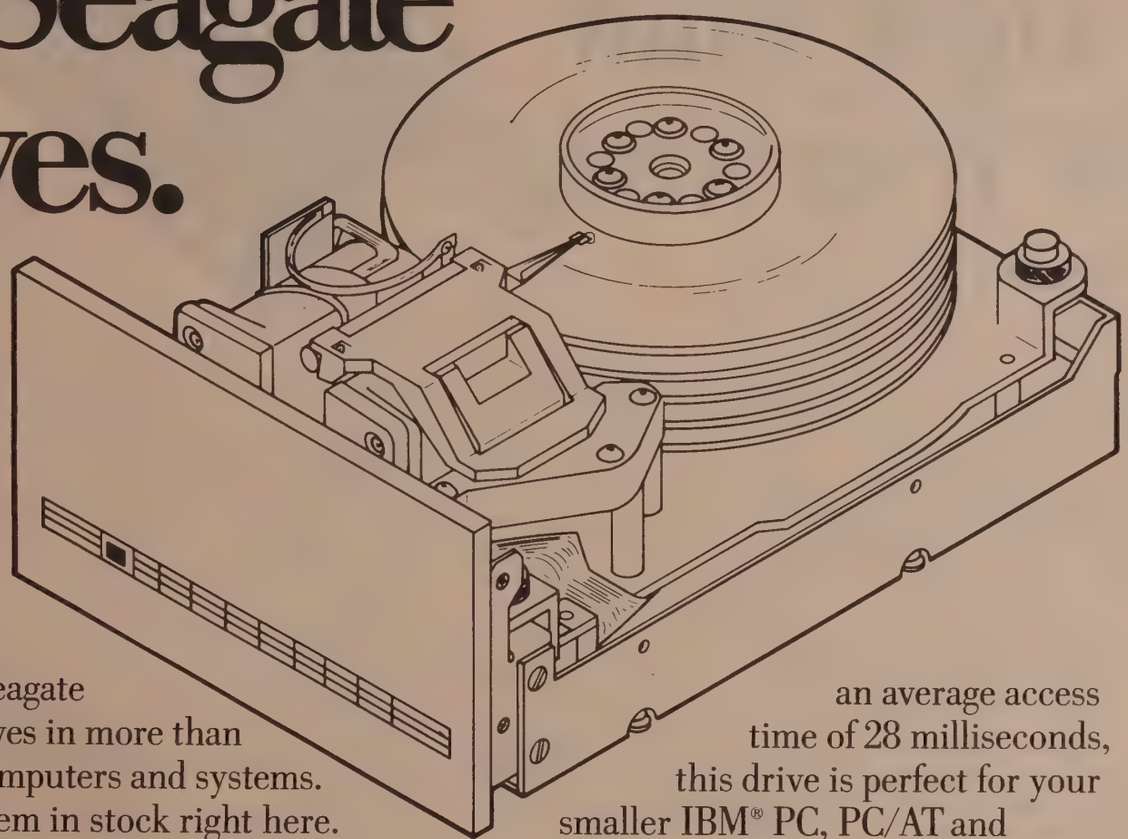

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Visual Aurals: A Light Show On Your Amiga

By Ben and Jean Means

Visual Aurals lets you create ever-changing onscreen animation driven by music.

Jean Michel Jarre, international jazz star, is spending five million dollars on a single night of light and sound in Tokyo this fall. Lasers, optical discs, and the Fairlight CVI will compete with fireworks and spotlights to barrage the entire city with spectacular technology. Amid all this extravagant high tech, Jarre will perform against five giant backlit video screens...generated on a Commodore Amiga with *Visual Aurals* ($169).

Does real time animation on your personal computer in response to music input sound too good to be true? That's what we wondered as we hooked up the Visual Aurals Music Animation System to our Amiga and put *Dark Side Of The Moon* on the CD player. As multi-colored shapes began zipping about on the Amiga monitor, we sat entranced, watching the sound of music.

No other personal computer has a program like *Visual Aurals*, which reacts to sound to create a flowing stream of art; it's a kaleidoscope gone berserk in time to the music. Remember the color organs in the late '60s and early '70s? Those cute little boxes with little lights that flashed on and off in response to the music? They were cute, trendy and after two or three songs, deadly dull in their sameness. Mark Adams and Dan Egolf remember, and they've brought the color organ concept to the Amiga with *Visual Aurals 1*. And to keep things interesting, they created literally trillions of different ways that the Amiga can draw real time animation onto the screen in response to music.

The result is a psychedelic array of colors and shapes pumping and oozing about the screen in time to the music. In the constantly changing Evolve mode, the user can slap on a CD or tape and sit back to watch the music play in an ever-evolving series of kaleidoscopic visuals.

The Fairlight CVI ($10,000) was one of the first semi-affordable computer-driven light shows, but with a few cables, a backlit video screen and a projector, *Visual Aurals* runs an ever-changing light show on the Amiga that night clubs, rock groups, cable channels or even MTV-wearied music lovers can afford.

Visual Aurals combines the Mindlight 7 hardware with custom software to create 2D animation in real time. You input sound through the Mindlight 7, a circular device which plugs into the #2 mouse port and has its own built-in microphone, as well as a stereo mini-phone jack. There are three controls on the Mindlight: microphone gain, overall gain and visual bias level. Since both the mic and the overall gains are always active, sound input can come from either mic or line level sources, or from both simultaneously. The visual bias level acts as a noise gate to filter out unwanted low level sounds.

The Mindlight covers the Amiga 1000 expansion bus, so if you're using a 1000 with expansion devices or an A500 or A2000, you'll need a joystick extender cable to connect the Mindlight to your Amiga. We'd recommend this even if you have an A1000 without expansion devices, since getting the Mindlight away from the Amiga helps insulate it from Amiga noises like the thwock of QWERTY keys and the hum of the cooling fan, both of which create visual responses that have little to do with any musical input you might be using.

Once you've gotten sound into your Amiga through the Mindlight, the *Visual Aurals* software takes over. You trigger visuals from one of four Mindlight channels: 1) bass and treble intensity, 2) overall intensity and frequency, 3) bass intensity and frequency and 4) overall and treble intensity. Channel 1 is the most useful for pop and rock, while classical music tends to get the best visual response from channels 2 or 4.

To set proper input levels, *Visual Aurals* has an oscilloscope-style display which shows the input levels to the current channel. Slap a good disc in your CD player, adjust the scope for maximum response without clipping, and you're ready to start generating some mind-blowing visuals. The quickest way to get an idea of the system's capabilities is to put Viz in Evolve Mode, which continuously changes the settings, resulting in hours of never-repeated animations.

Once the Evolve Mode has whetted your visual appetite, you can start slogging through the 113-page manual to find out how to create your own visuals from scratch. Some functions are available from pull-down menus, but since the sight of pulldowns would mar your visual performance, Viz is optimized to use QWERTY keyboard input.

The main function types are Vistas, Visuals, Faders and Modifiers. Vista is the function which determines how IFF (Interchange File Format) pictures are displayed; it supports all Amiga graphic modes except Halfbrite and can use overscan resolutions of 352 x 240, 352 x 480, 704 x 222 and 704 x 480. *Visual Aurals* can import pictures from other IFF graphics programs and use them as foregrounds, backgrounds and also as matte "masks" to reserve specific screen areas for animation or video.

Visuals are the basic animation patterns that the versatile Viz uses to put animations on the screen; *Visual Aurals* calls the two options Mozai and Kolai. Mozai visuals create flowing wavelike patterns using one of eight simple shapes. Kolai visuals use geometric forms or IFF brushes to paint the screen or to reveal the background pics.

Just like their name, Faders specify how the Visuals can be faded out after they're drawn. And finally

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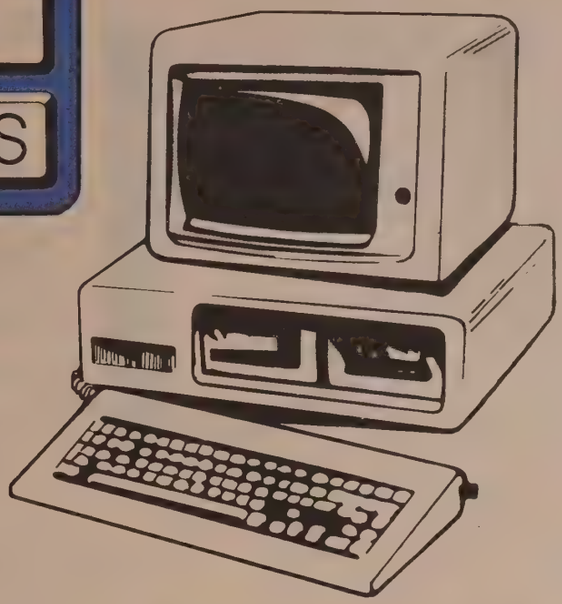

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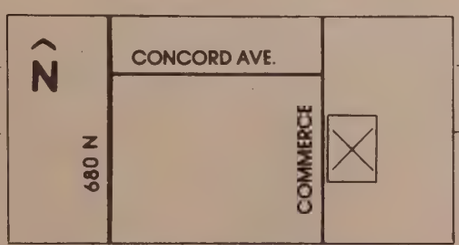

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Modifiers add a veritable Pandora's box of options of how to display the Faders and Visuals.

You also have three palettes on call at all times, picture scrolling and bit splitting. Bit splitting combined with scrolling is an awesome effect that has to be seen to be believed.

Once you find a visual you like, you can save it as an Environ, with 10 environ settings available at all times for instant recall. This allows you to orchestrate a Viz animation session with ease. If you want to create a really grandiose production, you can create a tagged datadisk with up to 100 files each of Environs, Pictures, Brushes, Sprites and MIDI files.

Viz has a MIDI sequencer that can record up to 2500 notes with mouse control over pitch, modulation, tempo and transposition. It uses the 0.02 MIDI file format from Opcode and can also read SMUS files.

Powerful, Yes. But That Learning Curve...

You begin to get the idea of how enormous the possibilities of this program are. But there is a catch...the learning curve. Viz is radically different from any personal computer paint or animation package, and uses some pretty arcane lingo to describe its workings. The manual is painfully unclear at times; since it has no index, finding the one bit of information you need can resemble a scavenger hunt at times. There are nine help screens which help a bit, and onscreen help which adds even more, but they don't change the fact that the size and complexity of this program is somewhere between the Chrysler Building and the Starship Enterprise.

If you're a committed Control Freak who wants every "i" dotted and "t" crossed, stay away! But if you're not afraid to make mistakes that look better than the things you did on purpose and have the vision to use an unplanned accident, *Viz* will keep you entertained for days on end. We know. We cursed the manual. We cursed the help screens. We cursed the onscreen help. But we kept booting the thing up and creating instant real-time animation that no animator this side of Disneyland would ever attempt.

For rock bands, club owners and local cable channels, *Visual Aurals* has great potential to help entertain and amuse their clientele. But be forewarned, as it says on page iii of the manual, "The real time animations are Copyright 1987 Visual Aural Animation. This copyright applies to any animation created by Visual Aurals with the exception of those animations which solely use custom Brushes with custom Pictures." If you don't meet the exception criteria, be sure and get written permission from Visual Aurals before you proceed.

We hooked up the Visual Aurals Music Animation System to our Amiga and put Dark Side Of The Moon on the CD player. As multi-colored shapes began zipping about on the Amiga monitor, we sat entranced, watching the sound of music.

Conclusions

In almost every culture, there is a tradition of combining visual and musical performance. From the African drum troupes to classical opera to the spectacle of the modern rock concert, musicians and artists have joined forces to entertain. Yet, too often we sit down to listen to an album while staring at the wall. *Visual Aurals* provides a solution to this in the form of 2D animation on your Amiga screen that moves and changes in response to music.

Never before has it been so easy to align sound and visuals...or so much fun. *Visual Aurals* is more entertaining than most prime time TV, more startling than lasers when exploded across a giant video screen ...and quite a backdrop for Jean Michel Jarre. (Visual Aurals, P.O. Box 4898, Arcata, CA 95521, 707/822-4800.) □

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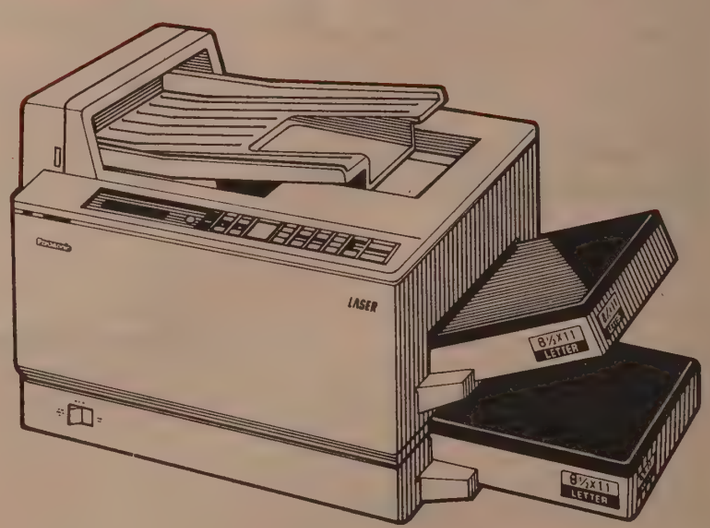

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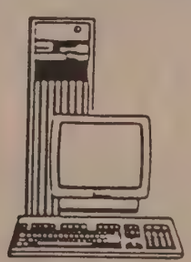

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SOLAR ECLIPSES:
THE MOON: Traveling at a rate of 25,000 miles an hour, takes over the entire sunblock in a matter of minutes.
Aldus
FreeHand

The Next Generation In Graphics Tools

By Roger Karraker and Robert Madrid

Until about a year ago, the art produced on personal computers looked like, well, computer art: its origin was unmistakable. Even in the Macintosh world, where most professional artists choose to work, the results were disappointing. If an illustrator chose a bit-mapped drawing program, such as the once-revolutionary *MacPaint*, the result was big chunky dots on the page. Even *SuperPaint*, with its "smoothing-the-jaggies" LaserBits option, could help only a little.

Object-oriented programs like *MacDraw* were little better. The resolution was significantly better, but the drawing tools were primitive: most notably, all the programs lacked the simple freehand "pencil" and "brush" tools common to bit-mapped programs. Draw programs store screen information as mathematical formulas, and the art of programming hadn't advanced far enough to figure out how to make graceful arcs, curves and lines into mathematical objects. Artwork created with these early programs had all the warmth of most technical illustrations.

But *MacDraw* and its ilk were cheap and ubiquitous, and when newspapers jumped feet first into Macintoshes (a 1987 survey of some members of the Society of Newspaper Design showed that of newspapers using computers for art, Macintoshes were preferred 85-15 over all other computers combined), *MacDraw* became a de facto standard.

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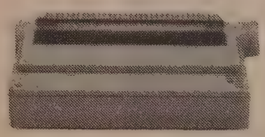

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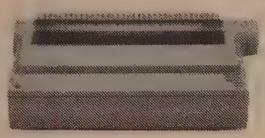

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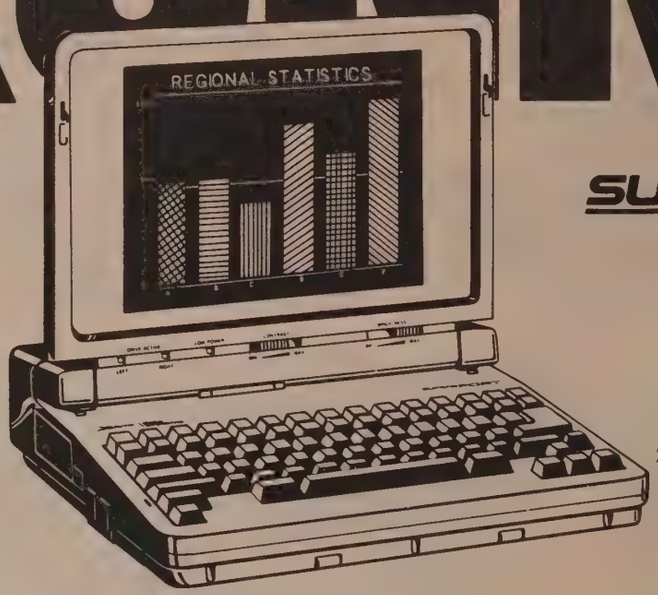

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usually charts, maps and technical illustrations — to member newspapers in *MacDraw* format. And their work looks increasingly dated.

Evolutionary programs, like *Cricket Draw*, *Illustrator* and *Laser FX* helped bridge the gap. These programs harnessed the power of PostScript, Adobe's revolutionary page description language, but were often erratic in performance (especially *Cricket Draw*, which most desktop publishers abandoned as being too unreliable) and couldn't accurately display on the screen what they would produce.

Adobe's *Illustrator* tackled head-on the problem of Bezier curves, those graceful irregular curves that real things are composed of. *Illustrator* wouldn't allow an artist to create such a curve by simply drawing. But the artist could draw a sketch freehand, then use a digitizing scanner to create a *MacPaint* file, import it to *Illustrator* and trace it, creating a series of interconnected dots. Each pair of dots could be manipulated into a Bezier curve, any angle, any radius. *Illustrator*'s new method was either highly intuitive or counter-intuitive: many artists loved it and were able to produce remarkable new line art. Others found it precise but laborious, more mechanistic than artistic.

Illustrator and its brethren were capable of sophisticated image manipulation and infinite shadings of gray, even color. However, the Macintosh Plus they were designed for simply wasn't enough of a workhorse. In addition to being (in retrospect) quite slow, it had a small screen, and a monochrome one at that.

The Macintosh II changed all that. Here came a computer with a much faster processor, able to handle lots more memory, with the option to add large monitors displaying life-like color or shades of gray. Here was a platform — an expensive one at perhaps $7,000 for a nicely loaded color Mac II — for the professional artist and illustrator.

It's been just over a year since the Mac II was introduced, and software firms have responded with professional-quality programs for professional illustrators. SuperMac's *Pixel Paint* is, so far, the ultimate supercharged *MacPaint*-like bit-mapped painting program. Adobe will soon be shipping *Illustrator '88*, a major upgrade of its premiere drawing program, and the release version will be the subject of a future *MicroTimes* review.

Enter FreeHand

But another competitor in the high-end drawing arena is already on stage. Aldus, the company which in large measure created desktop publishing with its *PageMaker* program, has for the past three months been shipping copies of *FreeHand*, a remarkable illustration program which addresses some of the deficiencies of *Illustrator* 1.1 and has reportedly caused Adobe to speed up its release of *Illustrator '88*.

Aldus didn't create *FreeHand*. It bought it, then named *Kaleidoscope*, from Altsys, the Texas company that created the highly-regarded font creation programs *Fontastic* (bit-mapped letters) and *Fontographer* (PostScript outlines).

Aldus took *Kaleidoscope*'s hottest feature and made it the product's new name: *FreeHand* has a smooth drawing tool just like those in any bit-mapped drawing program. When the mouse button is down and cruising around, a smooth continuous line appears on the screen. When the mouse button comes up the line in a split second is divided into an array of Bezier curves, each of which can be adjusted much as in *Illustrator*. Gone is *Illustrator*'s most nagging shortcoming, its inability to follow the artist's hand as it flowed across the screen.

Color Separations

This free-form drawing tool is unquestionably *FreeHand*'s single largest innovation, but by no means its only one. *FreeHand* is, I believe, the first program on the market that can automatically create and print color separations. And to explain what that means requires a minor diversion into the arcana of color printing.

The color photo on the cover of *MicroTimes* appears to include subtle hues from throughout the rainbow. They don't; it's an optical illusion. So-called "full color" printing is really composed of four primary inks: cyan (something like sky blue), magenta (a cool pink-red), yellow and black. What appears to be red on the cover is really a small yellow dot, partially superimposed on a small magenta dot. Green is a cyan dot and a yellow one. By using different tints ("percentages") of the four colors one on top of another, "four-color process" printing can simulate perhaps 100 million colors using just four colors of ink.

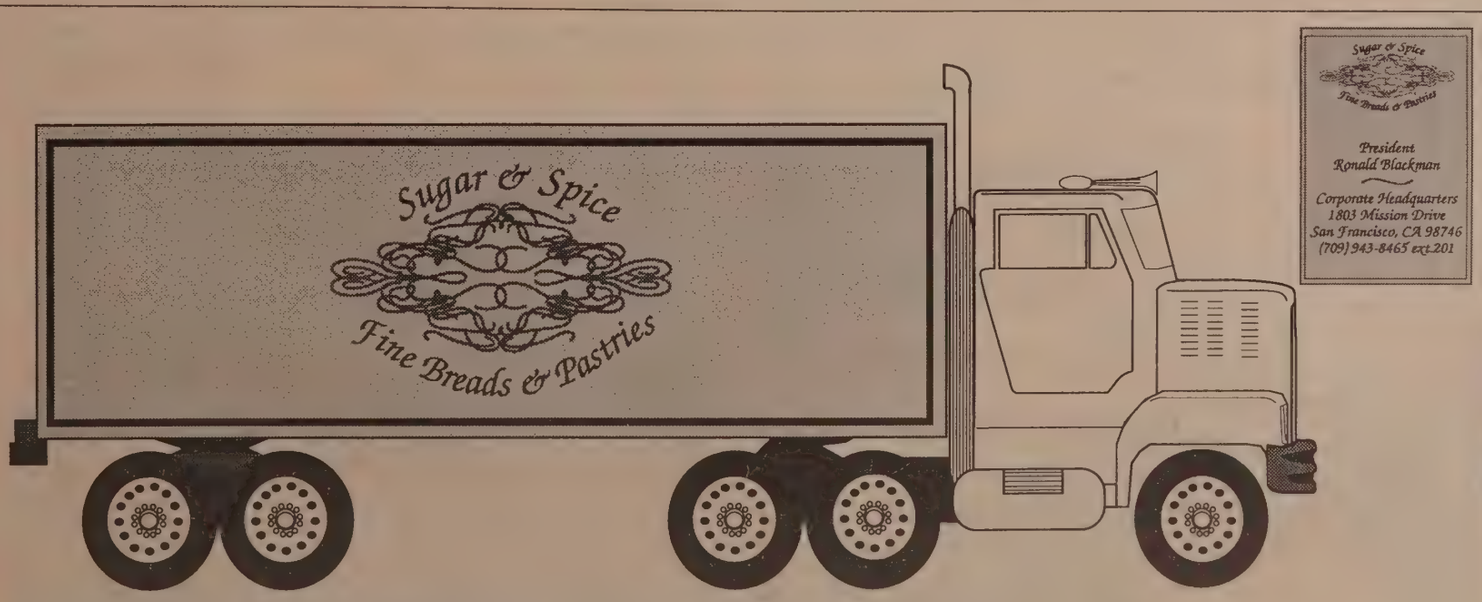
To add a further wrinkle of complexity, if the dots fall right on top of each other, strange patterns, called "moire," appear. To avoid them, the dots on each color separation must be angled 15 degrees from the next separation.

In pre-*FreeHand* days, artists doing four-color work had two ways to get color separations: one was expensive, the other laborious. The most traditional way was for the artist to do a full-color original of the artwork, then send it to a company that either electronically or photomechanically created the color separations. That could be expensive. If a corporate identity program used a four-color design, new separations would be required for each different size of finished work: letterheads, envelopes, business cards, packaging, decals, etc. At from $80 – $300 apiece the cost can add up.

The second method — for the artist to hand-cut the colors for each process color — is not only tedious, but doesn't lend itself to fine detail work.

The great contribution of *FreeHand* and the other professional drawing programs that will follow is that they bring the Mac II's awesome computing power to bear on color separations. The *FreeHand* artist can choose any 256 colors from a palette of 16.8 million colors and use them to create the most intricate designs. When it comes time to produce color separations, the artist clicks a box in the Page Set-Up menu, and the computer analyzes each pixel for its color makeup and produces four-color separations, adding the appropriate screen angles to avoid "moire," straight out of the LaserWriter, Linotronic or other PostScript printer. No expensive photomechanical color separations; no laborious hand-cutting of screens.

While writing this review we had a chance to give *FreeHand* the acid test. Commercial artist/illustrator R.B. Madrid created a four-color newspaper info graphic that was to be output on the local type shop's Linotronic 300. But when, on deadline, the Lino refused to print the *FreeHand* file, we were forced to settle for LaserWriter Plus 300-dpi output. The results were just fine: screen definition that is certainly up to newspaper quality, and no moire patterns. Our conclusion: LaserWriter output is just fine for newspapers and



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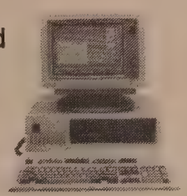

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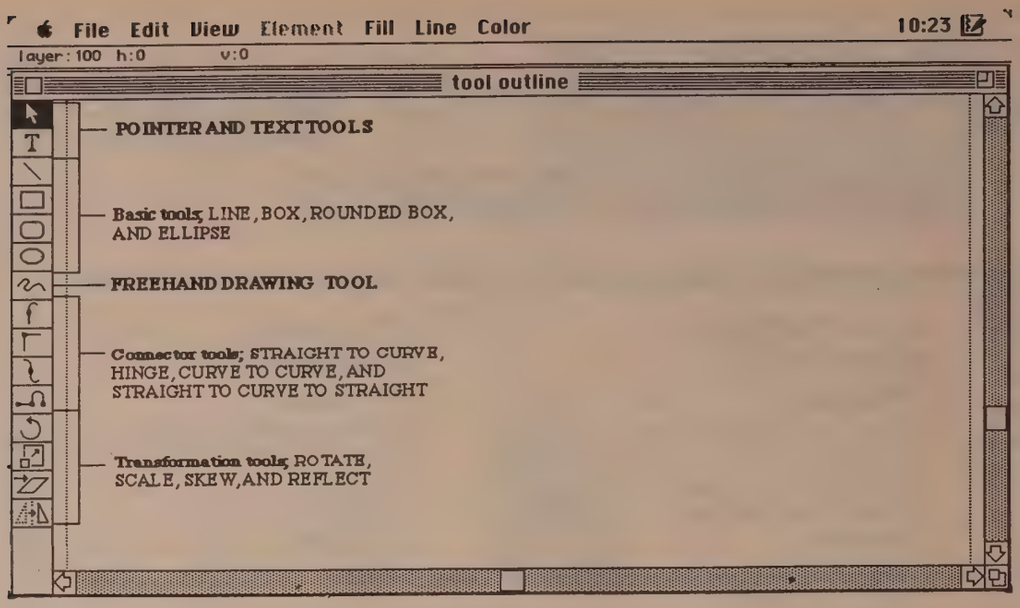
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FreeHand offers a revolutionary breakthrough in its freehand drawing tool, which lets the artist easily trace existing art for conversion to PostScript.

newsletters.

Incidentally, the printing problem was the Lino's fault. The local shop was using an out-of-date version of Apple's system. If you will be sending your file to a service bureau, be sure to include a copy of your system file and printer files of any special fonts you have used.

FreeHand can be used on a stock one-megabyte monochrome Macintosh Plus or SE. And it can be run, Aldus says, on a system with just two 800K disk drives. We encountered no problems running it under MultiFinder, Apple's new multi-tasking system.

A final tip — Get QuickerGraf (Apple calls it QuickerDraw, and it's included in the latest release of Apple system software). Screen re-draws in color, which increase in time as the document's complexity increases, are at least twice as fast under QuickerGraf. □

Copyright © 1988 by Roger Karraker and Robert Madrid. All rights reserved. *Roger Karraker teaches journalism and Macintosh at Santa Rosa Junior College. He is desktop publishing editor of Community College Journalist Magazine and is co-host of the desktop publishing conference on The WELL, the Sausalito, CA. regional conferencing system.*

Robert Madrid is a freelance designer, illustrator and computer graphic artist in Forestville, CA.

FreeHand: The Artist's Report

For the past several weeks commercial artist/illustrator R.B. Madrid has been using *FreeHand* on a daily basis, along with *Pixel Paint, Illustrator 1.1, Cricket Draw* and other programs. He's used them to create newspaper information graphics, corporate identity programs, packaging designs — and his own wedding invitation.

One of his first *FreeHand* projects was to re-create in PostScript a complicated poster which illustrated how thunderstorms occur. Madrid had hand-painted the original. It required two weeks of research and sketching, then about 30 hours of intricate painting in acrylics. He re-created the poster in *FreeHand*, improving its type characteristics a bit, in about two hours. Here's a summary of his report on *FreeHand:*

Color palettes: "I spend a lot of my time selecting colors, and *FreeHand*'s authors have done a good job of thinking out how artists use color. Two basic pre-configured color palettes — standard and crayon — come with the program. But artists can add as many different palettes as they need, limited only by the 256 colors the 8-bit Mac screen can display.

"For a demo corporate identity program I spent nearly three hours fine-tuning and revising my color palette. Once I'd chosen the final palette, I was able to save it for future use. If I later decide to alter one or more of the palette's color definitions, all of the artwork in that file using that color will be automatically changed in an instant. The color palettes allow me to preview how colors work together.

"In addition to four-color separations, *FreeHand* allows artists to create 'spot' colors — custom blends that will be printed with a single mixed ink. *FreeHand* will create a print separation for each spot color. It doesn't however, automatically translate these custom colors to the industry standard Pantone Matching System. This isn't a major problem, and is a shortcoming that will likely be remedied in an early revision."

Tools: "*FreeHand* supplies the artist with a sophisticated set of transformation tools to rotate, skew, mirror and scale objects, including graphics and text. Rotating, skewing and scaling help me quickly copy and transform a simple logo and show how it will be used, not only on two- dimensional paper, but in three-dimensional signs, matchbooks, even truck sidewalls."

Type: "*FreeHand* has excellent type handling. Type can be scaled to any size, put in color, curved, rotated, skewed, or bound to an invisible line. One drawback: text is typed in a 'type box,' and text within each box can only have a single characteristic: all must be in the same point size, all italic, or all bold. To change type styles, the type box must not only be open, the type must be highlighted as well. Although this is a bit awkward, *FreeHand* comes back with excellent controls that allow the artist to control kerning (the space between letters) as the type is being stretched, rotated or skewed."

Fills: "The essence of object drawing is filling each object with a color. Here *FreeHand* has one significant limitation, along with a lot of choices. The artist has a choice of standard (solid) fills of any color in the palette, or linear and logarithmic blends of two colors from any angle on the compass, or radial fills from the center of the object. What's missing here is the ability to create irregular fills: fills where the highlight isn't dead center in the object, or where the blend from color to color isn't in regular increments. *Pixel Paint*, for example, has a nifty 'shapeburst' option that allows the radial fill to conform to the shape of the object."

Pasteboard: "Like Aldus' *PageMaker* program, *FreeHand* is set up to replicate a traditional artist's environment. Outside the document lies an area Aldus calls, logically enough, the pasteboard. The artist can move items off the document onto the pasteboard and still have them in full view, available at a mouse click. The pasteboard is a valuable addition; too many other programs have omitted it."

Layers: "A great deal of commercial artwork is typically assembled in layers, often with elements destined for different colors put on separate sheets of clear acetate. An illustration may be pasted up on one board, then typed on another, with the colored rule or box on yet another. With *FreeHand*'s color separation facilities, separate sheets of acetate aren't necessary. But *FreeHand* has retained the notion of layers, and that makes it extremely easy to assemble complex artwork.

"Each object may be assigned a layer, from 1 (bottom) to 200 (top). The artist can elect to work on all layers simultaneously or on any individual layer, leaving untouched intricate adjacent objects.

"*FreeHand* cleverly uses its layer control for working with templates. Like *Illustrator*, *FreeHand* allows importing bit-mapped images to be used as templates. Illustrator uses an 'open template' command. *FreeHand* uses the traditional Macintosh clipboard. If the artist assigns the template to the 'zero' level, it will be visible to trace or overlay colors, but won't print when the artwork is completed."

— Roger Karraker and Robert Madrid

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PageMaker 3.0

The new version offers some great enhancements—and a few significant omissions.

By Helmi Kobler

PageMaker 3.0, the latest update to Aldus' tried-and-true page makeup program, has a lot going for it. PageMaker is already the leader in unit sales of Macintosh page makeup packages, and if you buy version 3.0, you won't have to worry about being left out in the cold after your purchase. Besides the nationwide network of authorized "Aldus Classroom Training Centers," you will find more community colleges, consultants, video tutorials, books and magazines offering help in PageMaker than for any other package.

Strong support like that is a big issue to a lot of users; PageMaker 3.0's facility for creating longer documents, spot color and other enhancements will make it even more attractive. Unfortunately for Aldus, though, PageMaker's improvements probably won't be enough to motivate ReadySetGo and especially Quark XPress users to make a switch. And newcomers to desktop publishing will find that those packages are still better suited for certain projects. There are enough loose ends in this PageMaker to allow the competition to grow, and as a result we'll probably see a three-player market from now on in Mac-based desktop publishing.

Still, ReadySetGo and XPress will have a tougher time competing. Both have lured desktop publishers because they were better-suited than PageMaker for creating long documents, but that's less significant now that PageMaker has style sheets and can automatically flow text through your entire document.

Text-Handling Improvements

PageMaker's style sheets are great time-savers for formatting text. They work a lot like the style sheets in Ventura Publisher, Microsoft Word or ReadySetGo; you assign a collection of formatting instructions—typeface, point size, tab settings, leading and color, for instance—to a "style" in PageMaker's Style Palette. Apply that style to a paragraph in your document, and it takes on the attributes you defined in the style.

Not only are you saved from making several menu selections to format the text, but using a style sheet lets you make global formatting changes in your document. If you want to change a newsletter's headlines from Helvetica to Futura Bold, just edit your Headlines style and PageMaker applies the change to all text already formatted with the Headlines style.

ReadySetGo users have this convenience, but PageMaker's style sheets are handier. If you use Microsoft Word, for instance, PageMaker will read the styles you've already created in your Word document and add them to its own style palette. And it keeps your publication's styles intact if you later export a story back to Word for editing.

Even better, PageMaker lets you "tag" text from other programs so that it's formatted by your publication's styles as it's imported. If you are using MacWrite, for instance, you could type the name of a PageMaker style at the start of a paragraph and when you import that MacWrite file, PageMaker reads those "tags" and formats your text with the styles you specified. You or your writers can tag the body text, headlines, subheads and any other distinct text elements of a story on the spot, saving the person who designs the publication from a lot of tedious formatting work.

Quark Xpress and ReadySetGo have lured desktop publishers because they were better-suited than PageMaker for creating long documents, but that's less significant now that PageMaker has style sheets and can automatically flow text through your entire document.

Autoflow is another of PageMaker's new anti-tedium features. Choose "Autoflow" from the menu, and PageMaker flows imported text from column to column and page to page, creating enough pages to fit your whole story. The pages are formatted according to the margins and column guides you've set up in your publication's default pages, and PageMaker actually shows text flow through each page so you can follow it page by page and interrupt anywhere you like. If you don't want to give PageMaker control of placing your stories, though, you can still do it the "old-fashioned" way: place each column by hand.

Being able to autoflow text won't be such a boon if you produce short pieces like ads, brochures and newsletters that use a freer, more varied design format. But for reports, books and other publications where all the pages share a common format (two columns with a header and footer on every page, for instance), autoflowing text saves from manually placing each column of each page.

But PageMaker could still use more flexibility for placing long

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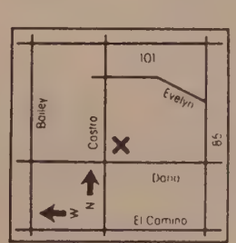

PageMaker can't be beaten for creating short, design-intensive pieces, and it can handle an occasional long document without too much of a hassle.

documents. It doesn't let you create chapters in a document, so you if you want to change a header to indicate a new chapter you will have to start a new PageMaker document.

PageMaker also won't show you where columns are linked to, which ReadySetGo or XPress will. If you're designing a newspaper or other publication where a story jumps from column 1 on page 1 to columns 2 and 3 on page 7 and finally ends in column 4 on page 17, you'll have a hard time keeping track of its path, since PageMaker doesn't display arrows or origin-and-continuation marks in columns. If you're specifically planning to produce long documents, I think XPress and, to some extent, ReadySetGo, are still more capable tools.

PageMaker is flexible enough to let a freelancer create a variety of projects, from ads and eight-page newsletters to reports over 50 pages long. You'll have to put up with its slight clumsiness when you do take on a large publication, but if that kind of project doesn't make up the majority of your work, then you'll appreciate PageMaker's intuitive nature that lets you get right down to creative design without worrying about the picture and text frames or design grids of XPress and ReadySetGo. PageMaker can't be beaten for creating short, design-intensive pieces, and it can still handle an occasional long document without too much of a hassle.

Graphics Handling

On the graphics side of things, you'll find several enhancements to this new version. For one thing, you don't have to look at your electronic page in only black and white anymore. If you've got a color Mac II system, you can assign glorious color to text, graphics created in PageMaker and even a page's background to simulate colored paper you may print on.

You create your colors by setting percentages in three color models: Red, Green, Blue; Cyan, Magenta, Yellow, Black; or Hue, Lightness, Saturation. When you print your document, PageMaker can create spot color separations with registration marks for each color you've used.

Whether PageMaker's spot color separations are handy depends on what kind of color you're working with. Most spot color, in my experience, is used for highlighting thin border lines and small blocks of text; your printer will probably let you color tissue paper to indicate colored areas instead of creating and pasting up separations. If you do need separations, though, you'll be glad PageMaker can now do them.

It's too bad, though, that Aldus didn't include Pantone's colors in PageMaker's color palette. Pantone's colors are the most popular spot colors used in print shops, but you'll have to go through the hassle of figuring out a Pantone color's equivalent in PageMaker's RGB, CMYB or HLS models to get an accurate color on your screen.

I had a few other disappointments with PageMaker's color features. Sometimes it gets its colors mixed up; when you set the color of your page's background, for instance, PageMaker occasionally displays a different shade from the one you asked for. Or sometimes it colors only a portion of your page. You can correct both quirks by reselecting the color, but that's inconvenient anyway. I was also disappointed that Aldus didn't fine tune PageMaker to work better with FreeHand, its PostScript drawing program. FreeHand graphics use PageMaker's same three color models, but you can only import them as black and white Encapsulated PostScript Files. If PageMaker could import FreeHand documents with their color intact, Aldus would have a dynamic duo.

If you work with grey scale images, you'll probably welcome PageMaker's new image control feature. Not only can you alter the contrast and lightness of imported TIFF files (and bit-mapped graphics), but, more importantly, you can set the halftone screen frequency in lines per inch, as well as the screen angle. You'll appreciate having this kind of control over your halftones; lighten a photograph so that overlapping text stands out. If you're printing on a Linotronic printer, you'll want to boost the TIFF image's lpi value from the default 53 lpi to over 100 lpi.

Make sure PageMaker accepts TIFF images from your scanner, though. Ironically, there are several different versions of the "industry standard" TIFF file format, and PageMaker doesn't recognize them all. For instance, the program locked up when I tried to import TIFF images scanned with DEST's PC Scan 1000. I got around the problem by bringing the DEST-scanned files into Letraset's ImageStudio, saving them as TIFF files there, and then importing them into PageMaker. That's a hassle, though, and also an expensive solution if you don't already own ImageStudio. Aldus says an upcoming maintenance update of PageMaker will work with more scanners; meanwhile, check with Aldus about your scanner's compatibility before you buy.

PageMaker can finally wrap text around any graphics in your publication. Graphics are surrounded by a perforated rectangle called a boundary. The boundary is the graphic's text repellent, and although it always starts off as a rectangle, you can customize it to fit the contours of irregularly shaped objects like circles by placing and dragging its handles. Manually fitting a boundary around irregular graphics isn't as fast as the automatic approach used by XPress and ReadySetGo, but the whole job only takes a minute or two, and leaves you with more flexibility in deciding how text wraps are done. Since you shape the graphic's boundary and the computer doesn't, you're free to apply a little creativity by putting in interesting angles and shapes.

Conclusions

I found other small touches to appreciate in the new PageMaker. The program now has hierarchical menus, and you can select fonts, point sizes and styles from the menus instead of entering the Type Specs dialog box. PageMaker will now convert the Mac's regular quotes to typesetting quotation marks as you import a text file. There's a new online help system too, although you can probably find any information you need quickly in PageMaker's excellent User and Reference Manuals. And Aldus ships 23 pre-designed templates that you can use in your own publications, if you don't mind them having the familiar "Aldus" look.

On the other hand, Aldus missed some important stuff in this version. You can only kern by 1/48 of an em space, and leading is set in only 1/2 point increments (you can control XPress's kerning and leading to 1/100 of an em space). PageMaker doesn't support tracking; if you want to control letter spacing, you have to use an awkward percentage scheme. You can't group objects, either, and there's no Find/Replace function.

If you already use PageMaker 2.0a, you've probably learned to live with these problems. Version 3.0 is nonetheless a great improvement, and buying the $85 upgrade will only make your work easier. If you don't have a stake in PageMaker already, think carefully about the kind of design you want to do. XPress, PageMaker's serious competition, has more precise typography, will offer Pantone colors and four-color separations in the next version, and is better at creating long documents with a uniform page format despite having no style sheets (although some style sheet functions can be done with its extended Find/Replace feature).

But PageMaker is elegant when producing pieces that play on design variation. It can automatically lay out larger documents if you need it to, and it does have the best style sheet feature around, which you'll probably come to depend on in every design session. Deciding whether these talents outweigh PageMaker's tradeoffs depends entirely on the kind of publications you create. (PageMaker 3.0. Aldus Corporation, First Avenue South, Seattle, WA 98104. List price is $595.) □

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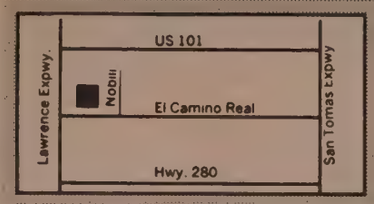

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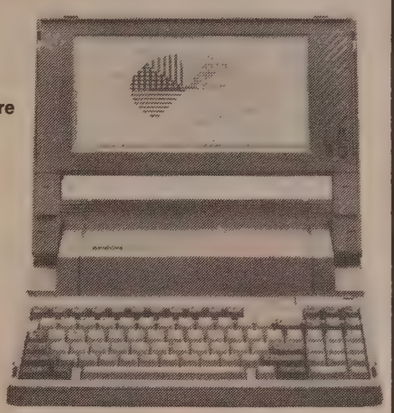

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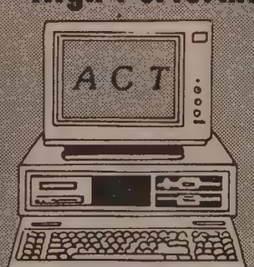

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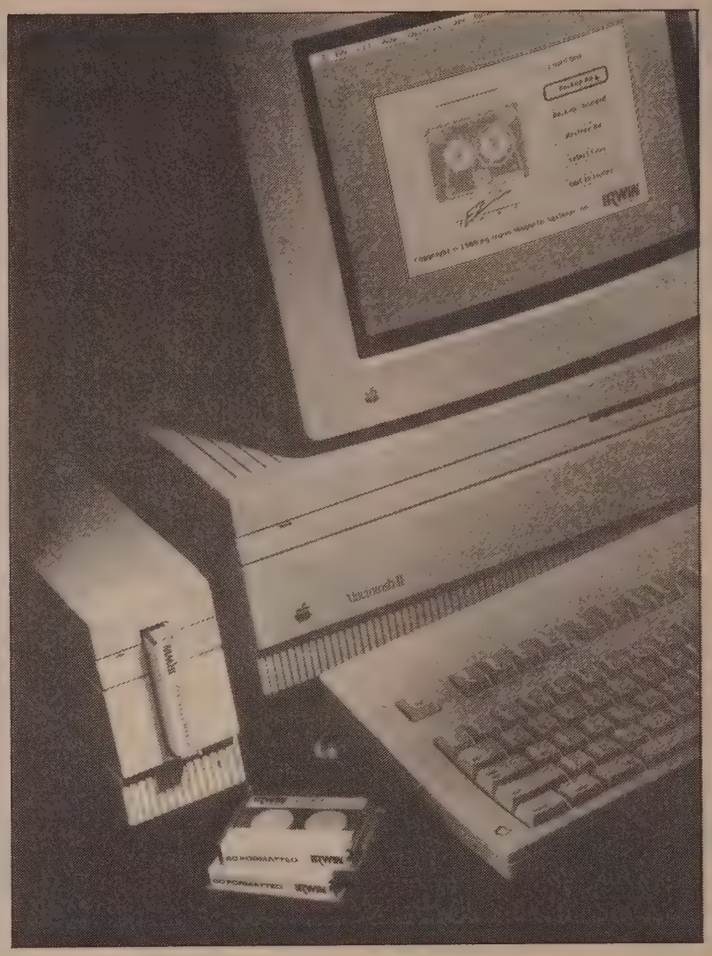

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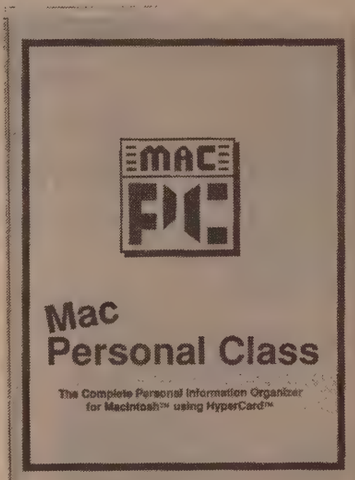

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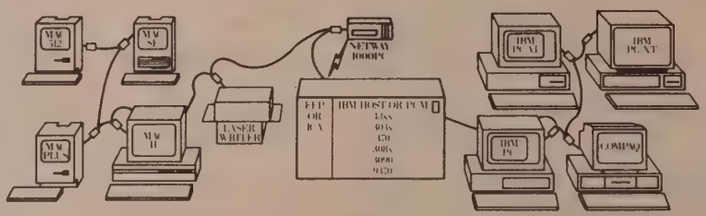
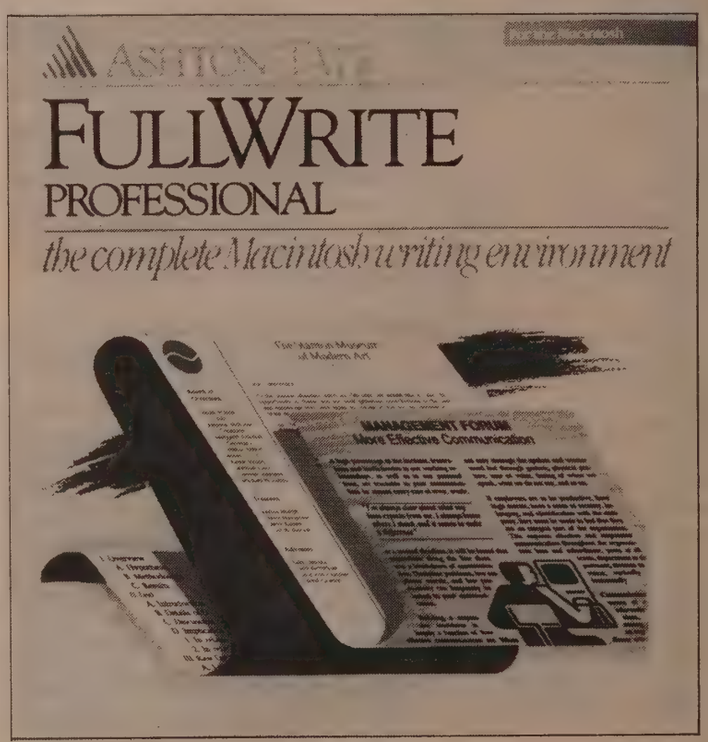
Mac Personal Class is a *HyperCard* application from Quadmation that keeps records of all your vital personal information. *Mac Personal Class* has special stacks for insurance information, personal wills, real estate, ownership information, assets and liabilities and other important information. It also features auto installation on your home card, self registration that avoids duplicated data input, and detailed help screens. ($59). Quadmation Inc., 1016 E. El Camino Real, Suite 160, Sunnyvale, CA 94087. (408) 985-8984.



Netway 1000 Connects Macs And PCs To IBM Mainframe

The Netway 1000 from Tri-Data is a LAN based gateway that allows both PCs and Macintoshes co-residing on an AppleTalk network to communicate with an IBM mainframe. It gives the PCs and Macintoshes 3270 workstation-like capabilities. The Netway 1000 consists of 3274 emulation hardware and 3270 workstation software that enables users to access mainframe functions such as electronic mail, database management and order entry. The Netway 1000 cuts costs by using less expensive AppleTalk cables and PC add-on cards rather than coaxial cables and cards. ($3,995, includes gateway and 3270 workstation software.) Tri-Data Systems, 1450 Kifer Road, Sunnyvale, CA 94086-5306. (408) 746-2900.



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FullWrite Professional, now available from Ashton-Tate, combines word processing, page layout and draw-type graphics into one program. Among its page layout features *FullWrite* lets you wrap text automatically around irregularly shaped graphic images, and allows multiple column width layouts on the same page. It also features kerning and leading controls, guttering and facing pages. Word processing features include endnotes, footnotes and citations, custom style sheets, 220,000 word thesaurus and a 100,000 word spelling checker. ($395). Ashton-Tate, 20101 Hamilton Ave., Torrance, CA 90502-1319. (213) 329-8000.

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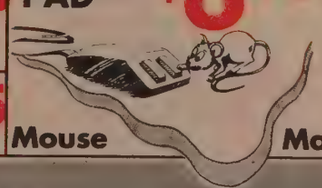

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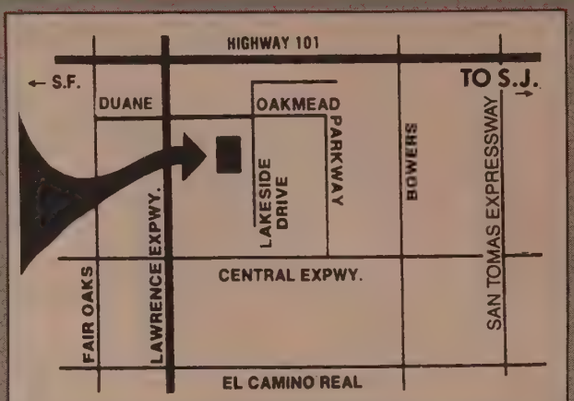

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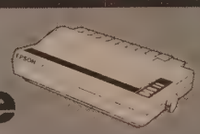

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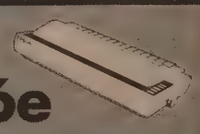

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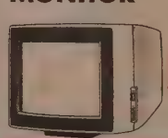

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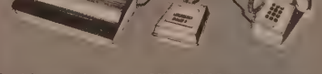

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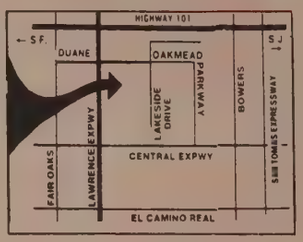

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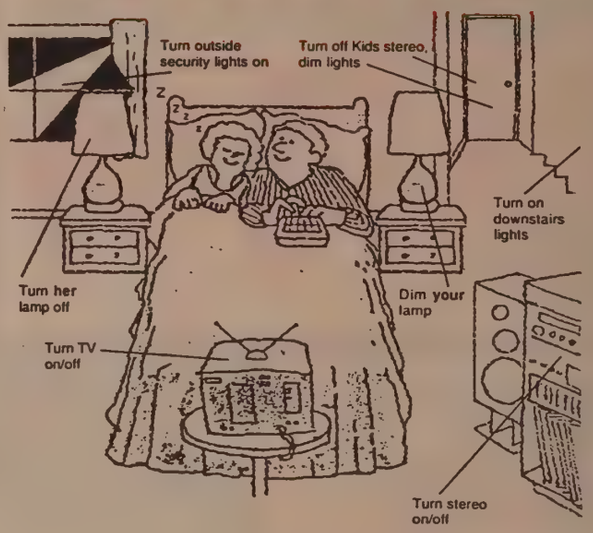
Turn outside security lights on
Turn off Kids stereo, dim lights
Turn on downstairs lights
Turn her lamp off
Dim your lamp
Turn TV on/off
Turn stereo on/off

COMPUTER INTERFACE MODULE FOR IBM/APPLE/MACINTOSH/COMMODORE

Computer interface module has menu driven software included w/module for convenience, security, safety and energy savings.

$29.95

THE SECURITY TIMER

Plugs in anywhere. Automatically turns on or off up to eight lights and appliances individually at the specified times, or randomly, to give your home a lived-in appearance.

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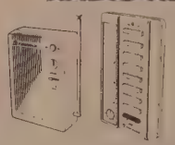
RADIO REMOTE CONTROL SYSTEM



Multi channel controller & receiver for up to 8 separate devices. Operate throughout the house or up to 300' from outside your home.

$39.95

LAMP MODULE

Receives signals from the Timer or Mini Controller to turn lamps on and off anywhere in the house. Full range dimming is possible from X-10 manual controllers.

$12.95

TELEPHONE RESPONDER

Control your lights & appliances from any telephone, wherever you are! The remote transmitter will transmit control signals with your 3 digit security code to your telephone responder located in your home.

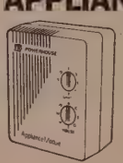
$39.95

WALL SWITCH MODULE

Replaces your existing indoor wall switch to control important indoor or outdoor lights; hallway, porch, flood lights, etc.

$12.95

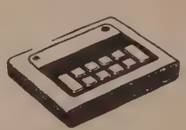
APPLIANCE MODULE



Receives signals from the Timer or Mini Controller to turn on or off a TV, air conditioner, stereo and other appliances anywhere in the house.

$12.95

MINI CONTROLLER



Instantly control 8 lights & applications throughout the house with the push of a button—From one convenient location!

$9.95

MAXI CONTROLLER

Plugs in anywhere. Lets you remotely control up to sixteen Lamp, Appliance and Wall Switch Modules and can also dim lights. Has a "panic button" to turn on ALL the lights at once if you hear a suspicious noise.

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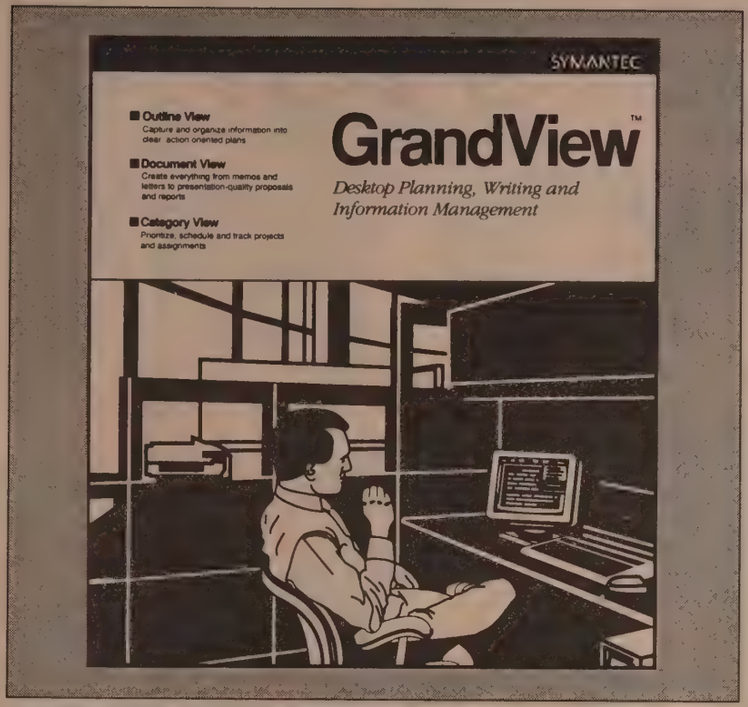
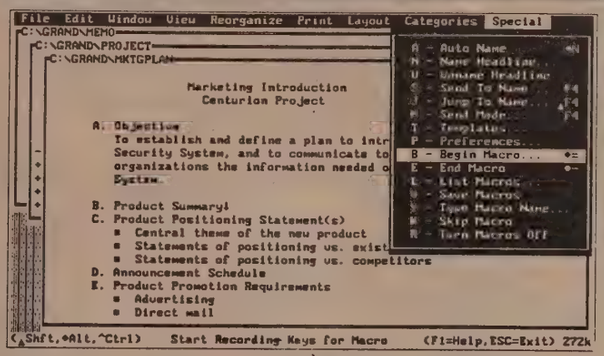

SYMANTEC
Outline View
Capture and organize information into clear action oriented plans
Document View
Create everything from memos and letters to presentation-quality proposals and reports
Category View
Prioritize, schedule and track projects and assignments
GrandView™
Desktop Planning, Writing and Information Management


File Edit Window View Reorganize Print Layout Categories Special
C:\GRAND\MEMO
C:\GRAND\PROJECT
C:\GRAND\MKTGPLAN
Marketing Introduction
Centurion Project
A. Objective
To establish and define a plan to intr
Security System, and to communicate to
organizations the information needed o
System.
B. Product Summary!
C. Product Positioning Statement(s)
Central theme of the new product
Statements of positioning vs. exist
Statements of positioning vs. competitors
D. Announcement Schedule
E. Product Promotion Requirements
Advertising
Direct mail
A - Auto Name
N - Name Headline
U - Rename Headline
S - Send To Name F4
J - Jump To Name... F4
M - Send Mode... F4
T - Templates...
P - Preferences...
B - Begin Macro...
E - End Macro
L - List Macros...
S - Save Macros...
T - Type Macro Name...
K - Skip Macro
R - Turn Macros Off
(Shft,Alt,Ctrl) Start Recording Keys for Macro (F1=Help,ESC=Exit) 272k

Use GrandView For:

- Marketing Plans
- Proposals
- Business Reports
- Project Planning
- Tracking
- Writing
- Speeches & Scripts
- Agendas
- Scheduling
- Status Reports
- Searching for Information

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- Project
- Task
- Person Responsible
- Due Date
- Priority
- Department
- Or ANY category you select

Symantec Corporation

Living Video Text Division

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- ***Outline View***
  Capture and organize information into clear, action oriented plans.
- ***Document View***
  Create everything from memos and letters to presentation quality proposals and reports.
- ***Category View***
  Assign, prioritize and schedule people and tasks to keep projects on track.

It's what you need to plan, organize, write, report, delegate, and track...to manage. With three powerful views into information management, GrandView gives you the insight you need to handle the total management process. GrandView helps you see the big picture clearly, without losing sight of even the most detailed organizational tasks.

GrandView lets you delegate without fear because its advanced Category View gathers detailed responsibility assignments from throughout the outline and shows them on one, easy-to-read screen. Assign information as you enter it in the outline. Or, let GrandView make assignments automatically for you. This advanced program makes it easier to manage your responsibilities as well as those you've delegated.

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.025D.....	$7.29
.020D.....	$7.99

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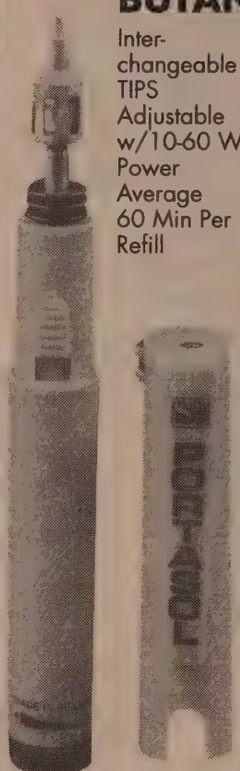

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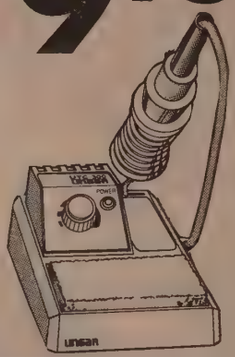

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.075" or .100"
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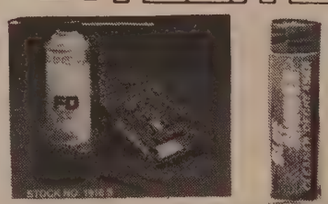

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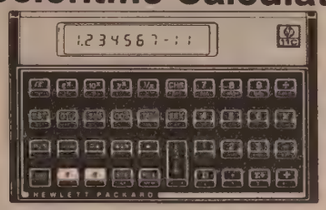

- Computes Trig, Hyperbolics, Combinations, Linear Regression
- Up to 203 Program Steps with 21 Storage Registers

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- Stereo Tape Playback
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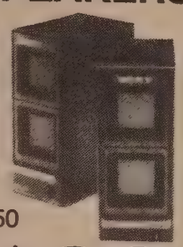

SRS-50

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SONY® D-T3 DISCMAN With AM/FM STEREO TUNER

- Built-in AM/FM Stereo Tuner
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- Shuffle Play Plus Disc Repeat Modes
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- Unilinear Converter® with Digital Filter

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SONY® TC-FX150 STEREO CASSETTE DECK

- Dolby B & C Noise Reduction®
- Dual 5 Segment LED VU Meters
- Metal Tape Capability
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SONY® STR-AV250 AM/FM AUDIO/VIDEO RECEIVER

- 35 Watts per Channel Minimum RMS at 8 Ohms, 40-20 KHz with No More Than 0.8% Total
- Direct Access Quartz Frequency Synthesis Tuning System
- Switchable for 2 Pairs of Speakers (A, B, A + B)
- Video Sound Input

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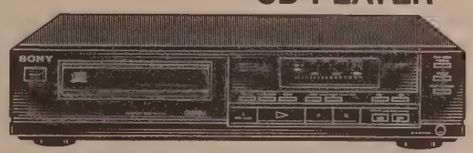
SONY® CDP-350 PROGRAMMABLE CD PLAYER



- Dual D to A Converters
- 2X Oversampling
- Envelope Differential Detection
- Headphone Jack with Volume Control

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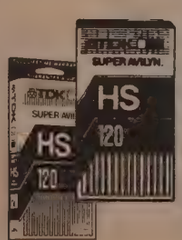
VIDEO

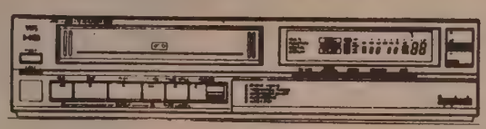
TDK® HS T-120



$2.88

Limit 20 Per Customer

Symphonic 5300 HQ VHS VCR



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- Auto Power On/Off
- Auto Rewind/Auto Eject

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SONY Video 8 HANDYCAM™ COMPACT CAMCORDER

- Compact Camcorder With Built-In Full-Function Playback Deck
- Auto Focus with 12-30mm Macro Zoom Lens
- Electronic Viewfinder for Accurate Framing
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- Linear Auto White Balance for Continuous Adjustment
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CCD-V3

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- Intelligent - backs up only those files which need to be backed up.
- Easy - use as few as two keystrokes per day.
- Fast - just a couple of minutes per day provides complete protection
- 100 percent MS DOS (PC DOS) compatible
- Works with windowing and network systems

Features At A Glance:

- Works with IBM, Compaq, Tandy, AT&T, Leading Edge and all compatibles and clones
- Complete data insurance-protects valuable data from loss due to disk crashes
- Backup to floppy disk, hard disk, disk cartridges and other disk devices
- Three levels of backup-modified, consolidated, full backup
- Easy - over 300 context-sensitive HELP screens plus easy-to-read manual
- Totally automates the backup process
- Instant access to your backup history
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- Tracks intentionally deleted files for accurate restore, data security
- Windowing provides access to DOS commands or the full screen editor
- Works with windowing and network systems

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HOW TO PICK THE RIGHT MOUSE!

LOGITECH

Though most mice out there look pretty much alike, they're not all equal in performance. It pays to be just a little choosey to make sure you end up with the right mouse for your needs.

Starting with software. If you want full compatibility with all of your software, all you have to do is look for a mouse with the Logitech name. There are four in all, each one designed for different hardware needs.

While you may pay less for another mouse, with a Logitech mouse you'll surely get more in performance. And in comfort. With a unique lightweight ergonomic design. Low-angled buttons for maximum comfort and minimum fatigue. An exclusive technology that guarantees a much greater life span. An exceptionally smooth-moving, dirt resistant roller ball. And natural compatibility with all PC's, look-a-likes and virtually any software.

All of which leads to an inescapable conclusion: if you want to end up with the right mouse, start with the right mouse company.

THE ALL-PURPOSE MOUSE: SERIAL OR BUS

Most people find our standard mouse is still the best choice for their systems. It's available in both bus and serial versions, one of which is sure to fit perfectly with your hardware. And with all your favorite software-whether mouse-based or not.

It's hardly an accident that only LOGITECH offers you such a complete selection-we're the only mouse company to design and manufacture our own products. We make more mice, in fact, than anyone else. Including custom-designed models for OEMs like AT&T, DEC and Hewlett-Packard.

SERIAL **$72.95** BUS **$94.95**

THE HiREZ MOUSE

If you've got your eyes on a high-resolution screen, the mouse to get your hand on is the new LOGITECH HiREZ Mouse.

With a resolution of 320 dots-per-inch (as compared with 200 dpi or less for ordinary mice),it covers the same area on your high-res screen but needs less of your desk to do it. More than 50% less. Saving you valuable desk space and effort: mouse maneuvers that used to require sweeps of the hand are now reduced to a flick of the wrist.

Which makes this new mouse a hand's best friend.And a more reliable, long-lasting companion. And, like all LOGITECH mice, it's fully compatible with all popular software and equipped with a Lifetime Guarantee.

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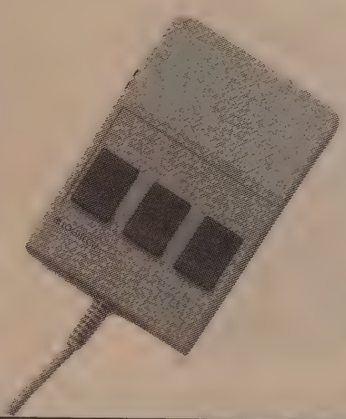
THE PUBLISHER MOUSE

The complete desktop publishing solution,with the all-purpose mouse, and PFS: First Publisher Software. Produce great looking, attention-getting documents. It's fast to learn, easy to use, and it gets you the results you need right now!

SERIAL **$129.95**

BUS **$149.95**

THE SERIES 2 MOUSE



For those who've chosen the Personal System/2™, the most logical choice is the LOGITECH Series 2 Mouse. It's 100% compatible with PS/2, and plugs right into the mouse port, leaving the serial port free to accommodate other peripherals.

$74.95

THE CADD MOUSE: LOGICADD

The all-purpose mouse with Generic CAD, computer aided 2-D Design software. An easy to use CAD package for the first time or home users.

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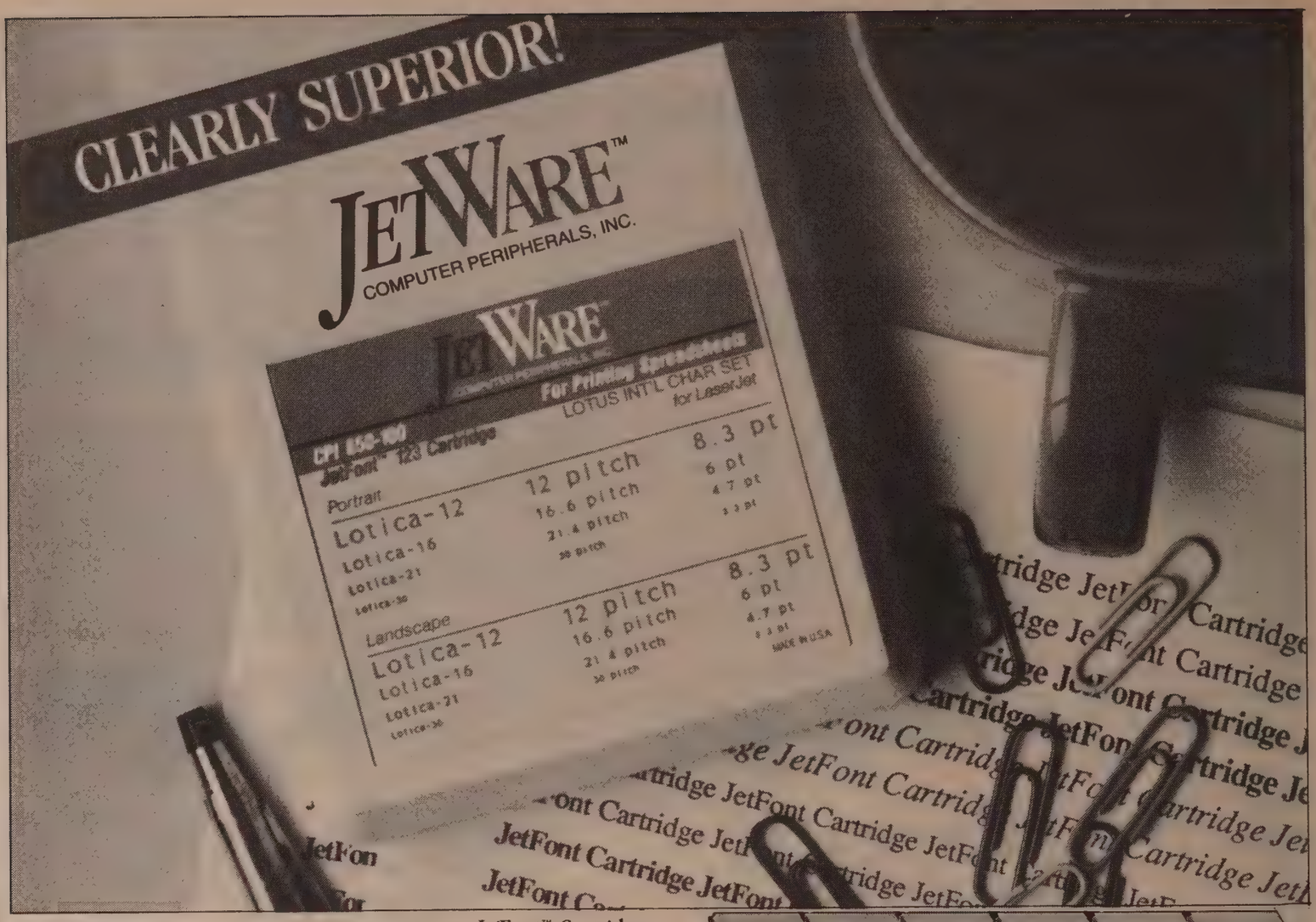

*Jet*Memory 1 MB Starter

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- *Recommended for single users with small amounts of font and graphics use*
- *Built-in expansion capability reduces memory upgrade costs*
- *State-of-the-art surface mount components for maximum capacity, minimum size, and higher reliability*
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*Jet*Font™ Cartridges

Primary Application	*Word Processing (proportional)*	*Word Processing (proportional)*	*Word Processing (proportional)*	*Word Processing (proportional)*	*Word Processing (monospaced & legal)*	*Spreadsheets*
Advantages	*Enhanced Characters†*	*Enhanced Characters†*	*Enhanced Characters†*	*Installation Software for WP*	*Installation Software for WP*	*Lotica typestyle; Lotus setup strings*
HP Equivalent††	*92286 B*	*92286 F*	*92286 Z*	*None (Z + software)*	*None (see for comparison HP A, C, D, E, M, & N)*	*None*
Primary Symbol Set	*ASCII*	*ASCII Roman-8*	*ASCII/ECMA*	*ASCII/ECMA*	*Roman-8, Roman-8 w/legal symbols*	*LICS-L**
Fonts	*Helv†† 14.4 bold* *Tms Rmn†† 10 pt med 10 pt bold 10 pt italic 8 pt light* *Line Printer 16.66 pitch*	*Helv†† 14.4 med* *Tms Rmn†† 10 pt med 10 pt bold 10 pt italic 8 pt med* *Line Printer 16.66 pitch*	*Helv† 14.4 pt bold* *Tms Rmn†† 14.4 pt bold* *12 pt med 12 pt bold 12 pt italic* *10 pt med 10 pt bold 10 pt italic* *8 pt med* *Line Printer 16.66 pitch*	*Helv† 14.4 pt bold* *Tms Rmn†† 14.4 pt bold* *12 pt med 12 pt bold 12 pt italic* *10 pt med 10 pt bold 10 pt italic* *8 pt med* *Line Printer 16.66 pitch*	*Courier 10 med bold* *Courier 12 med bold italic* *Prestige Elite med bold* *Letter Gothic med bold*	*Lotica™ (portrait) 12 pitch 16 pitch 21 pitch 30 pitch* *Lotica (landscape) 12 pitch 16 pitch 21 pitch 30 pitch*
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JetFont cartridges are 100% functionally identical to, and compatible with, their HP equivalents.

	*Jet*Font	HP
Improved Text Appearance	EZ$	EZ$
Improved Character Consistency	Qq@e	Qq@e
Improved Typographic Accuracy	Bg2	Bg2

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- Mouse-Ability or Ease of Keyboard Usage
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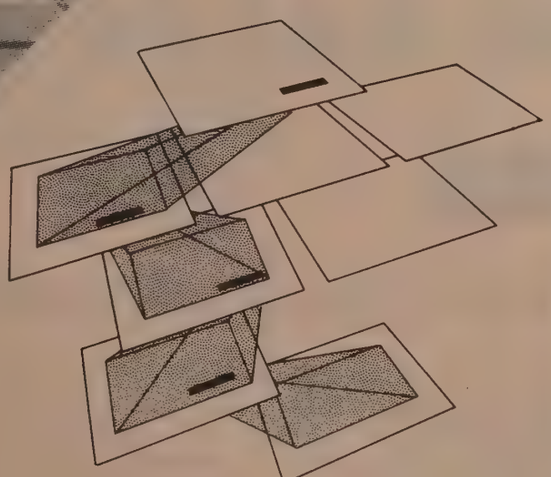

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Any cell of a spreadsheet can contain a complete other spreadsheet that you can access instantly with a single keystroke. Plus, any Lucid 3-D spreadsheet can pop up on top of any application (like Word Perfect or Wordstar) and you can cut and paste from one to the other.

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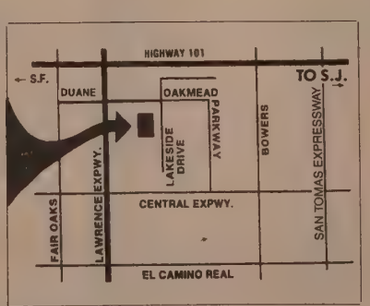

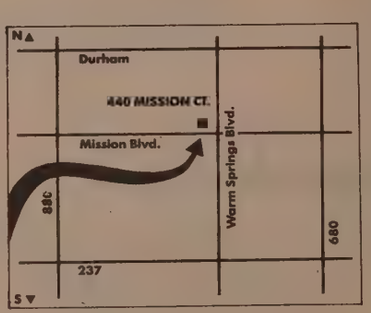

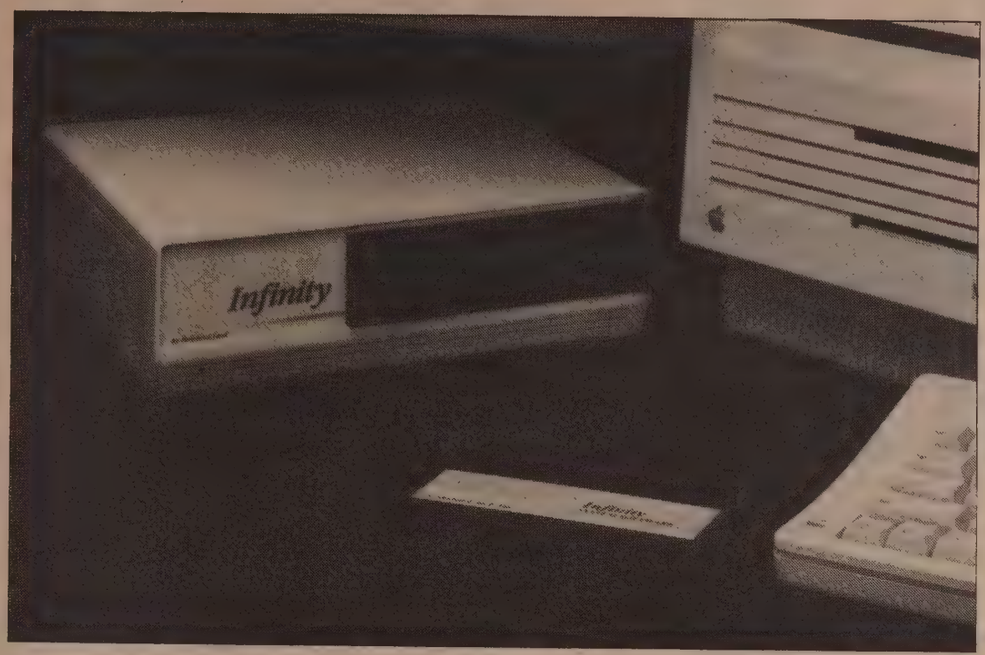

Peripheral Land's 10 MB Removable Disk Drive Reads DOS Files

The Infinity 10 MB SCSI removable disk drive from Peripheral Land can be used to make large file backups for safe storage. It also serves as a hard drive capable of storing files on 10 MB diskettes costing $18 apiece. One added feature is the Infinity's ability to read 360K and 1.2 MB floppy disks from an IBM PC. It is compatible with all Macs from the Plus up, and can be used as a font server with the LaserWriter II NTX. ($1,295). Peripheral Land, Inc., 47800 Westinghouse Drive, Fremont, CA 94538. (415) 659-2211.

Data Pak Removable Hard Disk Puts 44.5 MBs On 5.25" Disks

Storage-hungry and security-conscious users can now store 44.5 MBs of data on 5.25" removable disks from Mass Micro Systems. The new Data Pak comes with Pad Lok software that enables the user to partition a disk into as many as ten volumes and provide optional password security to any of them. The Data Pak has the exact footprint of a Macintosh and angles the Mac back at a thirty-three degree angle for viewing comfort. ($1,775). Mass Micro Systems, 550 Del Rey Avenue, Sunnyvale, CA 94086. (408) 522-1200.

Rodime Makes RX Series Internal Drives SE Compatible

Three Rodime internal hard drives originally designed exclusively for the Mac II are now usable with the SE. The 600 RX, 1000 RX and 1400 RX come with new mounting hardware that allows them to be installed in the SE. Upon request, Rodime will upgrade RX series drives bought prior to the enhancement. Rodime Inc., 901 Broken Sound Parkway, N.W., Boca Raton, Florida 33431. (305) 994-6200.

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BY BIRRELL WALSH

Academic Hypertext With HyperCard

HyperCard for the academic market has applications we're only beginning to explore. The May 16, 1988 issue of *InfoWorld* reports that the University of Chicago is using *HyperCard*'s Hypertalk programming language rather than Pascal in its beginning programming course.

HyperCard has so many features that it is easy to lose sight of the "Classical" idea of Hypertext for all the other goodies. When Ted Nelson conceived of hypertext, he was thinking of information that led on to other information in a pattern more complex than the sequential order of a book. A person could jump from topic to related topic in a possibly endless exploration. This month's column is devoted to this kind of "see-also" connections and the things you can do with them in an academic environment.

Classical Hypertext may appeal to teachers, because what linking is best for is the transfer of information. You can provide some central ideas and let the browser choose which side branches to move down. You can annotate a drawing with hidden comments which only appear when the user wants to see them. The viewer can see the original graphic untainted by text, or fully explained, as may be appropriate.

We spent some weeks this spring in the Southwest visiting Anasazi sites. The Anasazi were ancestors of the modern Pueblo Indians. They built exquisite stone cities on the Colorado Plateau of New Mexico, Arizona, Utah and Colorado. Some of these cities were in huge cliff-caves, which is why we call the Anasazi the "cliff-dwellers." We did a lot of research about these mysterious people.

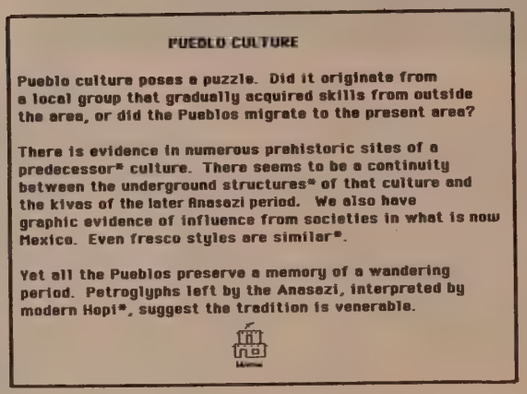
The first card of our stack is a simple page of text describing a question about the Anasazi/Pueblo culture. Today's scholar is confined to this venerable but limiting medium — a flat page.

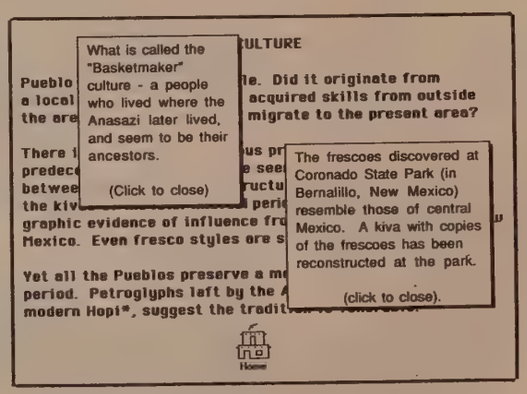
The first Hypertext change we make is to make some notes that appear when the reader clicks on starred text. One click and the note appears. A click on the note and it vanishes. This is still text, but augmented with hypernotes.

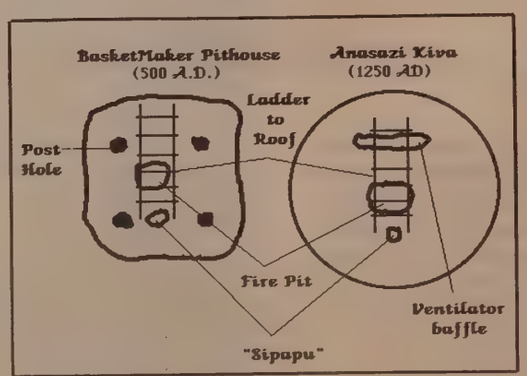
One argument for cultural continuity is best made graphically. When the reader clicks on the text about "underground structures," *HyperCard* links to a full-page graphic that displays the similarities between dwellings from the two different times. The hypertext user can see the illustration by pushing a button, instead of leafing through the book searching for plates. A spiral-pattern button leads back to the original page of text.

The Anasazi abandoned their cities and moved to their present homes in the twelfth and thirteenth centuries. They left a few enigmatic carvings on rock walls. Most of these petroglyphs are untranslated, but in 1942 some Hopis were invited to interpret those at Mesa Verde. The Hopis reported that they were a record of the Anasazi's migration. This image supports Pueblo traditions of a period of wandering before their settlement in the Southwest.

The translation is far from obvious, and shows how *HyperCard* can be used to interpret graphic material. If the user clicks on the figures of the pictograph, a text explanation appears. If the text is clicked upon, it disappears. One can make very finely-detailed annotations of illustrations without cluttering the graphic itself.


PUEBLO CULTURE
Pueblo culture poses a puzzle. Did it originate from a local group that gradually acquired skills from outside the area, or did the Pueblos migrate to the present area?
There is evidence in numerous prehistoric sites of a predecessor* culture. There seems to be a continuity between the underground structures* of that culture and the kives of the later Anasazi period. We also have graphic evidence of influence from societies in what is now Mexico. Even fresco styles are similar*.
Yet all the Pueblos preserve a memory of a wandering period. Petroglyphs left by the Anasazi, interpreted by modern Hopi*, suggest the tradition is venerable.
Home


What is called the "Basketmaker" culture - a people who lived where the Anasazi later lived, and seem to be their ancestors.
(Click to close)
The frescoes discovered at Coronado State Park (in Bernalillo, New Mexico) resemble those of central Mexico. A kiva with copies of the frescoes has been reconstructed at the park.
(click to close).
Home



HyperCard allows an author to place buttons in the text, which can be clicked to show more information on other cards or as boxes within the text itself.

What linking is best for is the transfer of information. You can provide some central ideas and let the browser choose which side branches to move down. You can annotate a drawing with hidden comments which only appear when the user wants to see them.

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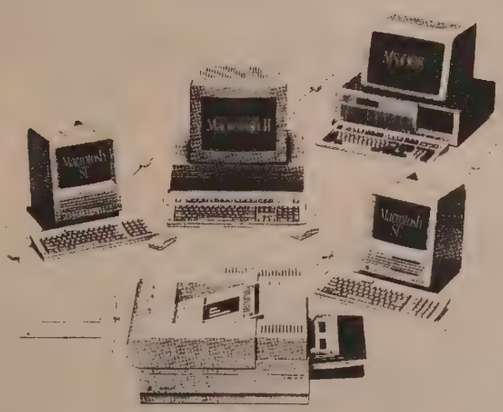

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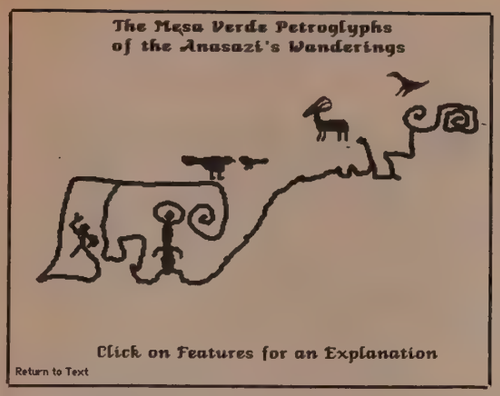

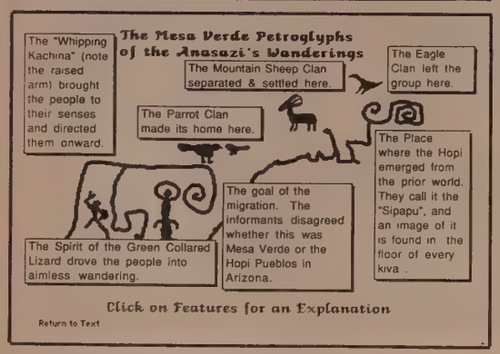
The Mesa Verde Petroglyphs
of the Anasazi's Wanderings
The "Whipping Kachina" (note the raised arm) brought the people to their senses and directed them onward.
The Mountain Sheep Clan separated & settled here.
The Eagle Clan left the group here.
The Parrot Clan made its home here.
The Place where the Hopi emerged from the prior world. They call it the "Sipapu", and an image of it is found in the floor of every kiva.
The goal of the migration. The informants disagreed whether this was Mesa Verde or the Hopi Pueblos in Arizona.
The Spirit of the Green Collared Lizard drove the people into aimless wandering.
Click on Features for an Explanation
Return to Text

Buttons may also be created to provide further explanations of graphics.

It is not so much the application that is remarkable as the fact that I was able to design the whole thing — drawing, text and scripts — in about three hours. Scholars may soon prefer working in *HyperCard* to traditional authorship. *HyperCard*, with minimal programming, creates a multi-dimensional medium for monographs. Footnotes are replaced by linkages, and graphic arguments can be made with great precision. The Macintosh is already a favorite tool in the University. Let us know, please, when the first instructor accepts the first "term-stack."

The Anasazi would have loved *HyperCard*.

HyperCard 1.2 Is Here, Sort Of...

Bill Atkinson spoke to people at Apple this month, and handed out copies of *HyperCard* 1.2 to those who brought along a disk. Harriet Talan was there

Scholars may soon prefer working in HyperCard to traditional authorship, because it creates a multi-dimensional medium for monographs.

and reports that the crowd was happy: "They applauded wildly on hearing of reducible size to 700K rather than 750K."

You will be able to bring up scripts immediately with Command-Option-C for the card; command-option to see all visible buttons. You can click on one to see its script.

About 200 bug fixes have been made by the *HyperCard* team.

Two new "find" commands will allow you to find either whole words or strings embedded in other strings. There are a whole gaggle of functions to report where something has been found. That means that you can search for a string, and then (say) examine in more detail the field in which it was discovered. Searches are also faster.

You can write-protect stacks.

You will get faster stack compacting.

The first stage of shared access has arrived. So far it is read-only on a file-server, but more is to come.

All in all, those who program in HyperTalk will have an easier time of it. The obvious question is, when can we lay hands on it?

If you were at the meeting, or know somebody who was, or know somebody who knows somebody — right away. Otherwise, who can say? Apple is not speaking. And rumors are that *HyperCard* 2.0 should be out about the end of the summer.

Keeping In Touch

This month's stack is available on the WELL (415/332-6106; you must join to use it and it is well har har worth it). You can find it by typing "g hype" to get to the *HyperCard* conference, then "lib" to visit the library. The stack and column are compacted as a "Stuff-It" archive.

You can leave messages, comments, praise and blame for stackware and *HyperCard* on the WELL (415/332-6106; user ID "birrell") or CompuServe (User ID 72466,3567) or by US Mail to:

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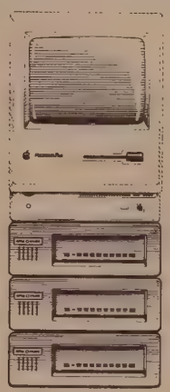

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BY ROBERT GRANT BEAUCHAMP

Micro Planner On The Mac And PC

The Four Step Path To Project Management Enlightenment: Connectivity Style

If you know your way around the office computer, you are probably familiar with word processors, databases and spreadsheets. One area that you're probably not familiar with, however, is project management. This is because, for the most part, high-end project managers for IBMs and compatibles are opaque. It can take a long time and a number of seminars to master them — a deadly enough combination to prevent most people from even starting.

On the low end, project managers are simply too limited to do much good. They can give you a good idea about the course your project should take; once the project starts, however, there's no way to modify the plan when the going gets rough and your project falls further and further behind.

The basic idea behind project managers is to take all your data and provide you with a visual representation of your project. Of course, when you combine visuals and computers you get the graphical interface. The Macintosh, then, would seem an ideal venue for project management programs. However, there's another equation: garbage in equals garbage out. If you can't get a grasp of the resources that are available to you and how those resources can be used to best effect, the Macintosh can't save you. Your charts and graphs will look nice, but they will mean nothing.

No wonder you haven't bothered.

Micro Planner

The solution, it seems, is to create a project manager that uses a graphical interface, is easy to learn, and helps you master the resources at your disposal. *Micro Planner* from Micro Planning International fits all these requirements. Until recently *Micro Planner* has only been available for the Macintosh. Now, however, Micro Planning has taken on the graphical interface for the PC: *Windows 2.0 Presentation Manager*. They have not only accomplished the rare feat of providing a *Windows* version just as good as a Macintosh one, but they also provide complete file transfer capabilities between the two environments.

Micro Planning International of San Francisco has been in the business of project management for ten years, first as consultants and then as the first producer of a project management package running on a microcomputer. Since then, Micro Planning has continued its consulting work, and numbers among its clients Apple, IBM, DEC and other corporate giants both in and out of the high-tech industry.

It doesn't really matter how much money you have wrapped up in your project, there is one aspect of project management that is true for everyone. The farther your project slips behind schedule, the more money it costs you. According to Tim Breen, CEO of Micro Planning, the goal of a project manager is to turn you from a reactor to a manager. From someone who is always running around putting out forest fires to one who can not only bring projects in on time and on budget but also pass that knowledge on to less experienced managers.

When you combine visuals and computers you get the graphical interface. The Macintosh, then, would seem an ideal venue for project management programs. However, there's another equation: garbage in equals garbage out.

The Four-Step Plan To Project Nirvana

Breen outlines four necessary steps to becoming a project planning guru. In a sort of four-part path to wisdom, *Micro Planner*'s powerful features help you along the way.

The first step, obviously, is to learn how to use the software. *Micro Planner*'s use of the graphical interface in both the Macintosh and the *Windows* environment is extremely helpful here. In this first step, it is also necessary to know the process involved in completing your project. Your goal is to create a logic chart.

A logic chart acts as a flow chart, showing you the course of the tasks involved in your project and how they connect to the other tasks. Creating the logic chart forces you to think through a process and detail the amount of time each task in the project takes, when in the course of the project that particular task needs to be done, and what resources are required to complete that task on time.

All this information is put on the chart through the use of boxes and lines. What makes *Micro Planner* different from most project managers is that it helps you sort out your chart so it isn't a mass of overlapping lines, creating something reminiscent of the kid's maze in the Sunday comics. In other words, you don't have to know how to map, just how to organize your project.

Each box is a field where the vital information of time and resources is stored. Because they are fields much like database fields or spreadsheet cells, *Micro Planner* files are easily imported into your favorite database or spreadsheet.

Once this is done, you can create your critical path bar chart. This bar chart breaks down each task into the number of days it takes to complete the task. It places the task in relation to the others according to when it needs to be done. "Critical"

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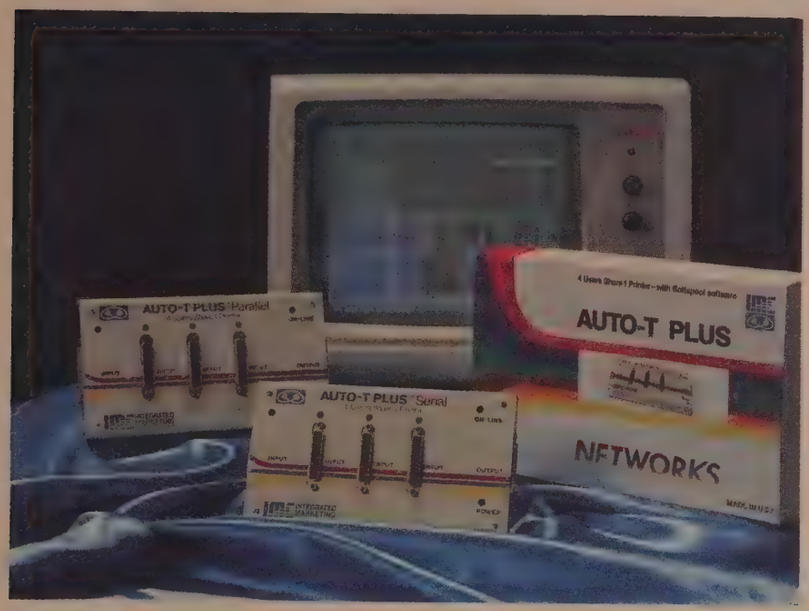

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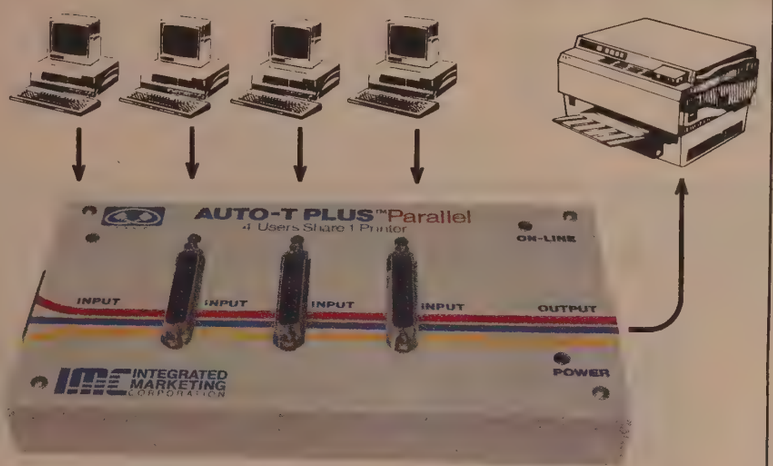

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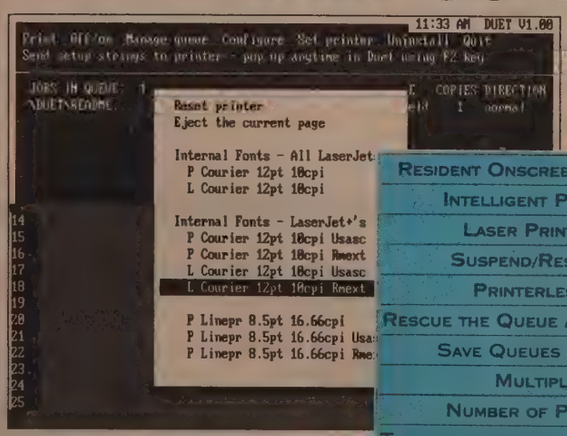
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tasks are those which must be completed in order for other tasks down the line to be finished. This lets a manager know which projects can be put off and for how long, and which tasks must be completed on time in order for the project to stay on schedule.

According to Breen, most project managers on the market will get you this far. The problem, he says, is that at this point most people tape their beautiful charts on the wall, everybody oohs and aahs, and then promptly forgets about them.

The second step is to maintain and update your charts as your project calls for it. Instead of collecting dust, your charts should be passed around, with everyone giving input as to the feasibility of your schedule. If you are encountering "slippages," you can update your charts to find out what tasks have become more critical to the completion of your project.

The third step is a big one. And this is where *Micro Planner* comes into its own. This is, according to Breen, to use his own words, where a project manager must "make your options painfully obvious."

If you put your chart up on the wall and don't look at it, the first thing that's going to happen is that your project will fall behind. All projects fall behind schedule, you might argue; it's the nature of projects. But according to Breen, this doesn't have to be. What makes *Micro Planner* so powerful is its ability to track resources and let you figure the availability of resources into your project's deadline.

For example, if you can see that with the current number of employees there is no way for you to get the project done on time, you can go to senior management and make a case for hiring more people. And you have the hard evidence to show them why you need those people. You can show them a printout of the current state of affairs, with the project's completion date slipping further and further away. Then show them the printout with the new hires figured into the equation, averting disaster.

Another example might be that you just found out that a load of supplies is going to be delivered a month late. By putting this information into *Micro Planner* you can see what effect this is going to have on your completion date and move workers around to other tasks while they're waiting for the supplies to come in.

While these are simple examples, *Micro Planner* is powerful enough to handle a myriad of variables. It is this manipulation of resources and the ability to look ahead and ask "what if?" that turns you from a reactor into a manager. It is also the point where *Micro Planner* leaves other project managers in the dust.

By the fourth step, you have not only achieved enlightenment, you are now ready to pass on your wisdom and experience. By using successful projects as templates, you can say to new managers, "This is how we run a successful project." According to Breen, most companies only have three or four types of projects. Once a template has been created, it can be shared company-wide. Managers will then be able to "resource" across department boundaries.

For example, a company might have a pool of engineers. If all the managers of different projects are using *Micro Planner*, and the manager of the engineers is using *Micro Planner*, then everyone knows exactly what engineers are available to whom and at what time, allowing everyone to prioritize and adjust their plans accordingly.

Good News For True Connectivity

What makes *Micro Planner* interesting to the connectivity-minded is its ease of use on both Macintoshes and PCs running the Presentation Manager version of Microsoft's *Windows*. Using a *Micro Planner* file that was created on a Mac on a PC is transparent.

One of the amazing things about *Micro Planner* on a PC running *Windows* is that you don't make any sacrifices. Windows has come under fire in some circles for not measuring up to existing technology. Breen debunks this by saying, "People come up to me and say '*Windows* is junk.' There's nothing wrong with *Windows*. It's just that the people who have been writing applications for *Windows* don't have the experience with windowing software that those who have been writing applications for the Mac for the last six years do."

In a side by side comparison, *Micro Planner* ran equally well in both environments. It is fully compatible with the Presentation Manager, and even runs in a window in the Presentation Manager's desktop. That's something that even Microsoft's own *Word* can't do.

If *Micro Planner* is an example of what can be expected in the future for those wishing to connect Macs and PCs, there's a lot to look forward to. (Micro Planning International, 235 Montgomery Street, Suite 840, San Francisco, CA 94104. (415) 788-3324.) □

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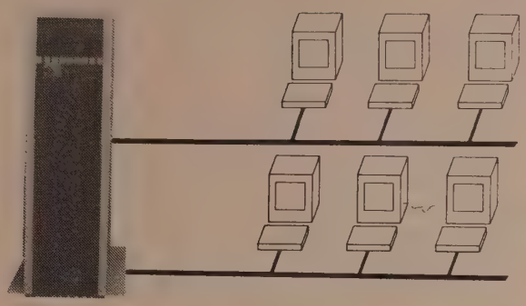

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BMUG

BY DAVID MORGENSTERN

BMUG Comes To MicroTimes

Welcome to the first BMUG column! Or, to be more precise, the very first *MicroTimes* column by and about BMUG, Inc.

What is BMUG? Good question. BMUG is an educational non-profit corporation, promoting the exchange of information. Like any growing organization it is many different things to its 3000+ international membership. BMUG, Inc. is a computer user group located in Berkeley, California. We specialize in computers using a graphic interface. For a while that meant the Macintosh, but now includes other makes, models and operating systems. We support many Special Interest Groups (SIGs), a five-line BBS, help-line, software library, weekly meetings and much more. We also put out a semi-annual book that we call a newsletter. Our motto continues to be: *We're in the business of giving away information.*

The information we give away in this column will usually be divided into three areas: Meeting Stuff, HelpLine Stuff and Everything Else stuff.

The Meeting Report

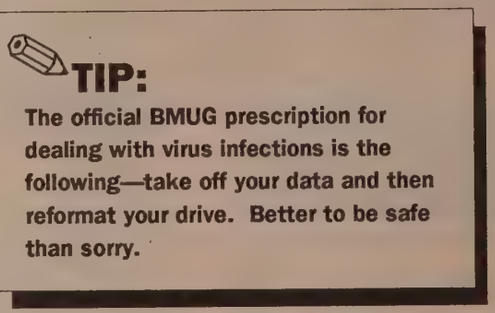
Contrary to what you may have heard, our Thursday meeting is not a form of electro-shock therapy for software publishers' marketing departments. However, it's true that our crowd hates hype and canned presentations. We go wild for stuff that works and someone who knows how to make it work.

The meetings also provide a great opportunity for pooling ideas and information. Recent meetings have seen a lot of questions about viruses.

We've been asked what BMUG is doing to protect our BBS and software library from the virus threat. One thing we've been doing is taking more time to screen our disks, checking out programs. Phil Reese points out that the BMUG BBS is not only checked thoroughly, it runs on a PC, so it provides a "sterile" environment for Mac applications.

We also offer BMUG Utilities disk #8, which is full of virus-killing and -finding programs. Viruses are overrated — most users won't ever see one; a show of hands at a recent meeting indicated that about a dozen members had experienced an attack, mostly software publishers, professional programmers or sysops. The current crop of viruses are also easy to detect.

Other tips to minimize your vulnerability to virus attack: back up your files frequently. It's now advisable to keep different types of backups. Make multiple backup sets, with incremental backups onto clean disks, and archival or "milestone" backups, to be used in the event one of your more "frequent" backups becomes infected. The milestone backup should be a backup of system and applications — things that don't change often, but take a lot of time to restore from scratch. Data files should be backed up separately.


TIP:
The official BMUG prescription for dealing with virus infections is the following—take off your data and then reformat your drive. Better to be safe than sorry.

Another tip: save working documents as "Text Only" or SYLK or other formats which are *data only* and *have no resource fork*. If nothing else, you can preserve your data that way.

There are currently several programs available which take different approaches to the virus problem. *Vaccine* is preventative — it watches for certain ways of changing things. *InterFeron 2.0* looks for certain patterns in code and resources after the fact to detect infection. *VIrus RX* (from Apple, released in the first week of May) does the same. It also helps check out your disk — it sometimes says that things are infected when they really aren't, because the patterns the program searches for occur "naturally." *Ferret 1.1* (although some say it is buggy) is the most effective at actually removing viruses. *Agar* is designed to *attract* infection and alert you immediately.

Come and join in the dialogue every Thursday evening, 6:00–6:30, in the Physical Sciences Lecture Hall on the UC campus.

Here We Come To Save The Day!

The BMUG Help Line, (415) 849-HELP, provides technical assistance and primary hand-holding during business hours (9:00 am–6:00 pm). If your question can't be answered on the spot, we try to get you in touch with someone that can help. Of course, not every problem can have a happy ending — but we try.

During finals, in late May and early June, the Help Line is swamped with word processing and disk failure problems. Here are some tips to help you **avoid** the Help Line!

• **Back up your work!** I'm always amazed at how few users ever back up their work — even many computer "geniuses" don't bother. How many hours of work can you afford to lose for the price of a couple of floppies? A user showed me a disk with problems the other day. He said, "the disk has been working fine for the past couple of years...." Your floppies need vacations too. They don't last forever.

• **Save your work!** I know saving takes time and stops your creative flow, but save your work to disk every five or so minutes. Microsoft *Word* users: If you find your document growing and growing on your disk and not on the screen, you're probably using the *Fast-Save* instead of a normal *Save*. Do a *Save-As* and you'll compact your document.

• **Look out for memory problems!** The new powerful word-processors love memory. In order to speed things up, these programs put parts of your work in caches — like squirrels. Sometimes there's not enough memory to do all the things you or the program want to do. Crash!

Although software publishers claim that these programs will work on a 512K Mac, some of them are hard pressed to work on a Mac Plus or SE with only one megabyte of memory. Many memory-resident utilities, INITs, beep sounds, some dictionaries and thesauri, and other goodies can steal memory from your program. Be careful cutting and pasting large hunks of your document or between open documents.

• **Don't initialize your work disk if something goes wrong.** Sometimes the information that tells the Mac what's what and what's where on your disk gets mixed-up. Sometimes the Mac thinks that the disk you've been working on (with your thesis, paper or book) isn't a Macintosh disk any-

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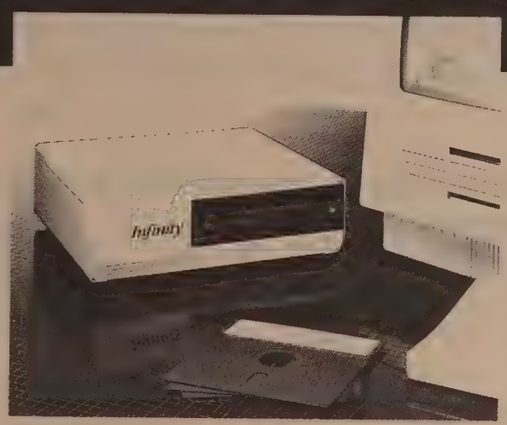

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more. You get the choice of initializing or of ejecting. Some new users think initializing will fix the disk. Wrong!

Many people feel they should *do something* to regain control over the situation. The new system (6.0 and available at BMUG for $8.00) now tells you what initialization will mean to your work if you act on your subconscious button-pushing desires. Lost data is often recoverable with recovery programs, but not after initialization.

The 288K Zone

Do you have a 80 megabyte or larger hard-disk drive? Having some troubles? The fault may or may not be a hardware problem. Instead, take a look at the invisible desktop file.

The desktop file is an invisible file that hides on your disks. It can be seen with various Mac utility programs. It remembers every icon it's ever seen, type and ID numbers of applications, and the folder IDs of applications. The resource manager uses this file to figure who's who on the disk. This is the way the Mac knows how to open the document you've double-clicked.

If this file becomes corrupted, or very large, you can run into problems. Usually the first indication of trouble is a slow desktop. Opening a folder becomes a big deal. As Raines Cohen says, "It's all one big glob the resource manager has to plow through." To compact the desktop file: hold down the *Option* and *Command* keys and double-click on the Finder.

Unfortunately the desktop file currently has a limit of 288K. This seems adequate if we remember the first Macs came with 400K drives. However, HFS (the Hierarchical Filing System the Mac now uses) has a 64,000 file limit that can't be approached with the current desktop software. The closer you get to the 288K desktop limit, the slower you get. Pass go and collect a crash. These problems become more acute in the new 300, 500 and 800 megabyte drives now making their way into the market.

TIP:

Have you ever lost a label in your ImageWriter printer? Don't bother with major surgery. To remove a label: Squirt in PCB cleaner and drench the label. Wait five minutes, then roll a business card through on friction feed to snag the label. Roll through a paper towel, first wet, then dry. Then print two pages of test on normal paper.

Apple tested an AppleShare Init called the DeskTop Manager, which broke up the desktop file into pieces, in beta versions of the new 6.0 system software. Apple programmers called the program a "interim solution." It was not included in the general release of the new 6.0 system for compatability problems — in other words, too many programs had trouble with the "solution."

Everything Else

BMUG has one of the most up-to-date, comprehensive software libraries around with 200+ double-sided disks filled with the latest versions of public domain, shareware and *HyperCard* stacks. New disks are unveiled almost every week at the Thursday general meeting.

Our BBS offers the latest versions of files in our software library as well as news, private mail, rumors, etc. The BMUG BBS is part of the worldwide EchoMac Network on FIDOnet; by calling a local FIDOnet BBS in your area, you would then be able to get in touch with us wherever you are, as well as send mail to users everywhere! With our multi-line capability you will now be able to have access to BMUG almost 24 hours a day. It's easy to use, fun, and a great resource.

Upcoming Events

June 9: SuperMac products.
June 16: Spectrum Holobyte and Symantec Corp.
June 23: Jasmine products and Symmetry.
June 30: Software Ventures and Imagine That!

BMUG has many great Special Interest Groups (SIGs). They're a great way to meet people doing or trying to do the same things you are. They include the Alpha/Beta SIGs (for new users, not-so new users), Desktop Publishing, Computer-Aided Design, HyperCard, Music, Professional Users, Programmers, Telecommunications, A/UX, Database Users and more. We're trying to start a new SIG around video and computers. If that sounds interesting, call Paul at (415) 661-7076.

You can reach BMUG at any of the following numbers: (415) 549-2684 (Business Office); (415) 849-9114 (Announcements/Meeting Schedule). □

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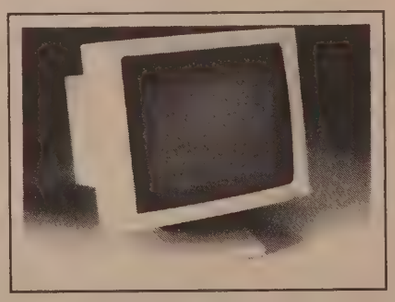

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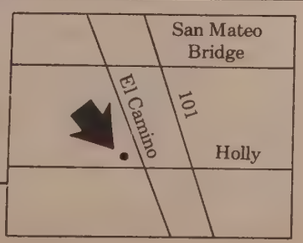

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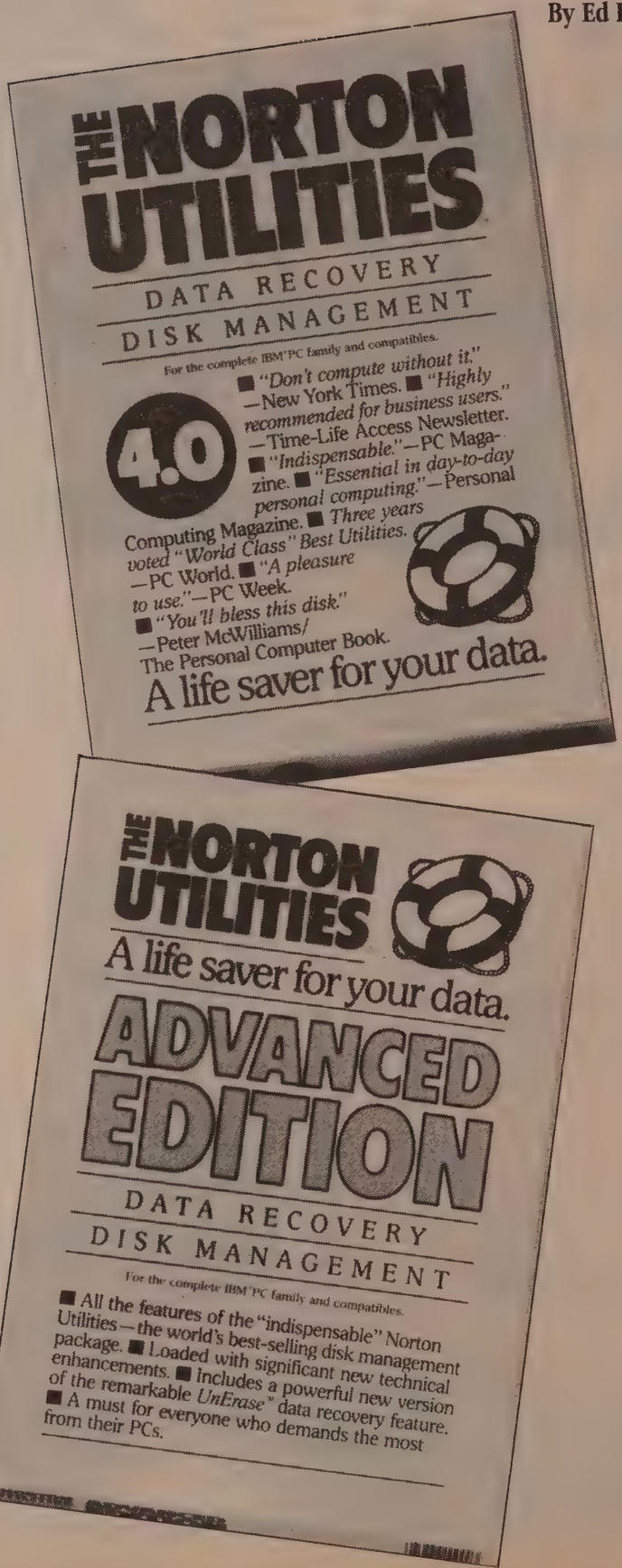
Useful Little Programs For The PC

By Ed Kahn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In the early days of computing, you had to know a good deal about programming in order to tailor a system to your own needs. Over the years, however, more and more products have become available for novices who want to customize their systems and perform neat little tricks. In this article, I will discuss some of the more interesting tools available for PC and PC clone users which will open doors previously sealed to all but the most sophisticated.

Some functions that were once difficult to perform are now easily handled by several basic utility packages. While the same function may be handled by competing products, in most cases the cost is low enough so that if there is something you really want in a given package, it is worth buying. While these packages are accessible to the novice, their usefulness is not limited to the unsophisticated. In fact, most of these products were really aimed at the high-powered crowd, but they are so simply arranged and well documented that anyone can easily use them. The more complex the hardware-software package, the more likely there will be problems that can be overcome by these products.

FreeFiler

If you have a hard disk, the risk of losing data increases with the number of files on the system. Years ago, I dreamed of a program that might help me find bits and pieces of information that wasn't lost, just misplaced in my files. In the days when I worked with a CP/M computer, I found a wonderfully powerful program that did just what I wanted. *FreeFiler* has been available to the PC/MS-DOS world for some time; its newest release, *FreeFiler 6* ($89.00) is the best yet.

This nifty little program lets you find any piece of text anywhere in your system — on hard disk or floppy. Once you call up the program, it asks you what word you would like to locate. You have the opportunity to list string (a series of characters — word or symbols) after string.

For instance, I remembered that I had written a letter to the judge in Hollywood protesting my innocence concerning a parking violation. By the time I received the second warrant, I could no longer remember the name of the file. So I told *FreeFiler* that I wanted it to find all of the files that had judge in them. It asked me if I wanted to search a particular file, all of the files in a sub-directory, or the whole disk. It then proceeded to locate the file I needed.

On another occasion, I needed to find each place within a 50-page document that mentioned both childhood and banjo. As soon as a relevant paragraph was located, the program asked if I wanted to save it in a newly created file. In this way, I could compile vast new files drawn from other documents on my system. When I was done, I would not only have collected all of the relevant passages, but also would know from which file each was drawn. For researchers there is nothing like this program.

VOPT

After using a hard disk for a long time, you will find that accessing the disk slows down. This is because as you create and erase files, they become fragmented. That means that instead of a whole file lying together on the disk, it is broken up to utilize all of the bits and pieces of space available, even though they are in a number of different places on the disk. So when you want to call up that file, the disk drive's head has to jump from place to place in order to assemble all of the parts of the file. The longer you use the disk, the more fragmented it will become.

The old way to solve the problem was to copy all of the files from the disk — essentially making a complete backup — and then erase everything on the disk and copy the files back. This was a tedious project that could take the whole afternoon.

Then inexpensive programs began to come to market that solved the problem in a much easier way. These optimizers, as they were called, simply moved things around on the disk until everything was in optimum

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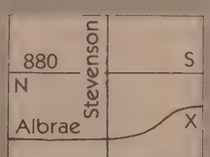

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order and you didn't have to do anything except instruct the program to begin. The one I prefer is *VOPT* ($49.95). The program is so simple that all you do is type those four letters and the rest is pretty much automatic. If there are irregularities that need your attention, the program will instruct you in simple terms that anyone can understand.

While the magic is working, the program presents a graphic representation of the disk's space and shows you as it moves files around for optimum efficiency. If you like, you can even instruct this program to run from your autoexec.bat file so that each time you turn on the machine it will optimize the hard disk. If you do this, it generally takes less than a minute to complete the job.

VOPT comes in a package with several other utility programs as well. One of my favorites is Vtsr. Typing this command and hitting return will show you a listing of all of the memory resident programs currently installed, in the order in which they were installed, and indicate the amount of memory each takes. I find myself using this more than I could have imagined; it is the only program I know of that shows you this information so simply. Altogether the package includes ten programs. At that price, it's less expensive than many shareware programs.

Utilities: Mace And Norton

Paul Mace Software has released a new version of the *Mace Utilities* ($99.00). This is a remarkable collection of assorted programs.

The first release of the *Mace Utilities* got a lot of attention because of its ability to recover a disk that had been formatted by mistake. Before *Mace*, it was generally believed that once a disk had been reformatted there was no chance of recovering the files. But the Mace package contained programs for undoing this worst of mistakes. Floppies could be unformatted, but more importantly, hard disks could be restored.

It is not easy to recover the data from a reformatted disk unless you follow the precautionary procedure that *Mace* spells out before such a mistake occurs; if you do, unformatting is a snap. The *Mace* package instructs you to run one of the programs on the disk each time you turn on the computer, most conveniently directly from the autoexec.bat file, so that a copy of the internal directories of the disk is hidden away and not affected in case of a reformat. If you follow this procedure, it is really nothing to recover all the data of a hard disk if an accidental reformat occurs.

The *Mace* package contains lots more than this valuable program. There are simple programs for undeleting files that you mistakenly erase as well as more complex programs that will allow you to recover fragments of files if parts of the files have been permanently destroyed. Part of a file is better than nothing when it comes to recovering valuable lost data. Other programs allow you to alter default color values on monitors and sort directories according to a number of different criteria, including alphabetical listing by file name, listing by date of the file, by file extension or any combination of these criteria.

These few features that I have described are easily accessible to any computer user. It will require you to read the documentation that comes with the programs, but does not require you to have highly specialized knowledge of computers. The manuals are so well written that reading them is a pleasure. If you still can't figure out what to do, there is excellent telephone support. In addition to these programs, there are many more sophisticated programs that will appeal to power users interested in customizing their systems. And a final batch of programs deals specifically with the repair and recovery of *dBASE* files. Any user who has need for even one of the programs is urged to purchase the collection. If you recover one valuable file one time, it is worth the price of the package.

The first major collection of utility programs for the IBM/compatible marketplace was *The Norton Utilities*. The latest release, *Version 4.0 & Advanced Edition* ($150.00), contains all of the original programs, many in improved form, plus several new additions.

As Norton and Mace have improved their products, they have begun to overlap in significant areas. It is nevertheless impossible to choose between these two packages. Both collections contain unformat, unerase and optimizer programs. Norton's latest edition has added a convenient new program called File Info that allows you to attach a description of up to 65 characters to each file entry. This allows you to prepare a little reminder to yourself indicating what a file is about.

The heart of the original *Norton* program was the unerase program for file recovery. But there are a host of great little utilities that work around the annoyances inherent in a system limited to plain vanilla DOS.

File Find lets you locate a file that you know is somewhere on your system. You can even use wildcards in the search if you do not remember the exact file name.

File Attributes lists your files including hidden and system files that do not normally show up on a directory listing. The program also allows you to change the attributes — useful for viewing or deleting files as well as changing files to or from read only.

Norton Change Directories is a wonderful little program that makes the DOS change directory command obsolete.

System Information shows you how much memory you have as well as other information about your computer. This program has become the standard for measuring the speed of different systems. All speeds are indicated in relationship to a simple IBM PC XT. The program also indicates which peripherals are present and many other details about the particular configuration of the system.

The *Norton* package comes with straightforward descriptions of the component programs as well as full on-line help and a summary card that will refresh your memory about any of the programs after you have played around with the package the first time.

Display Master

If you are using a color monitor, you will inevitably find that there are customizations that you would like to incorporate into you system. First, it is pleasant to change the color of the basic DOS display. This can easily be done with either the *Mace* or *Norton* packages.

But if you have an EGA display and want to go further, the program to examine is *Display Master* ($69.95). This little gem gives you the kind of control over your display that you never imagined possible. It allows you to easily alter the number of lines and columns that are displayed. These changes, of course, will alter the size of the display characters. I find, for instance, that the 43-line display that is possible with *WordStar* and EGA makes the text too small for my taste. But with DM, I am able to strike a compromise at 29 lines.

In addition to modifying the number of rows and columns in the display, you also have complete control over the colors themselves. This allows you, miraculously, to get real underlining with word processing packages including *WordStar* and *WordPerfect*, even with a color monitor. By using batch files, you can create a different configuration of colors and screen setup for each software package you use.

In addition, the package allows you to design your own fonts on a pixel by pixel basis. The package comes with an alternate design set that displays zero without the line through it and makes other subtle changes that are more pleasing. But more importantly, the program allows you to modify any character you like in any way you like. So it is relatively simple to generate foreign character sets that you can load whenever you need them.

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NoBlink/Accelerator

There is also some control over the cursor display, but if that is your purpose, the program to examine is *NoBlink/Accelerator* ($49.95). This is a program whose purpose is to control every aspect of cursor appearance and movement.

The range of possibilities is great. You can control the color and shape of the cursor, as well as whether it blinks or not. You can even set it so that the cursor will not blink, but the character underneath the cursor will. A final area of control allows you to speed up the movement of the cursor and stop it from overrunning.

In addition to cursor control, *NoBlink* allows you to control foreground and background colors on the fly. This means that from within a program you can alter the colors to suit your needs. Although there are other products that duplicate some of these features, I am not aware of any other program that will allow you to have a non-blinking cursor on an IBM/compatible. □

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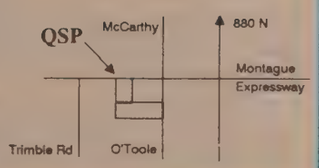

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Hapless Installs XENIX

By Bennett Falk

Hapless got the bad news about 3:30 in the afternoon and really wasn't quite the same for the rest of the day. When he got off work, he moped down the block and headed straight for "The Sign o' the Pipe," one of the UNIX bars that have sprung up along Hollis Street in Emeryville. At the bar he ordered a Calistoga and some Beer Nuts. He sat for a while, staring at the bar and distractedly peeling the label off the mineral water bottle. From across the room a vaguely familiar voice called out: "Hey, Hapless, man, wha's happenin'?"

In a back corner some truckers, who hadn't quite figured out where to go now that the computer crowd had taken over their bar, looked up from a game of eight ball, nudged each other and made some rude remarks.

Hapless looked around and saw a group of UNIX gurus sitting at a table. One of them beckoned him to join them, and though Hapless was introduced all around he quickly forgot everyone's name.

"So, what's up with you?" somebody asked.

"Well, it's XENIX," Hapless began. Around the table several pairs of eyes rolled heavenward. "You see, a couple of weeks ago, I bit the bullet and bought a new computer just to have a UNIX system at home.

"I went to the computer store in my neighborhood and ordered up the Wyse 386 machine with 2 MB of memory, a 70 megabyte hard disk, an Irwin tape drive, a Microsoft mouse and a color monitor with a VGA adapter. Then I bought a copy of the SCO XENIX 386 development system from a mail order software house."

"Wasn't it awfully risky to buy things from different vendors?" someone ventured.

Hapless tried to act nonchalant: "Well, at the time, I didn't think so. These machines and their accessories are supposed to be pretty much standard."

"I don't know," the guru replied. "I've seen the SCO documentation and they devote a lot of space to describing the hardware options they're compatible with."

"Yeah, I know. Anyway, before long everything arrived and I sat down to plug in all the peripherals and install XENIX.

Copyright © 1988 by Bennett Falk. *Bennett Falk lives in the Bay Area and works for Sybase, Inc. He writes whenever he can and hopes for the best.*

The voice of optimism: "Once XENIX has been booted from the hard disk, another installation program supervises the loading of the rest of the XENIX software. What could be easier?"

"The monitor, keyboard, and mouse were no problem. I booted DOS just to check out all the hardware. The Wyse comes with a nifty version of DOS 3.2 that can use hard disk partitions larger than 32 MB, so the vendor had given it one 70-MB DOS partition. Everything seemed to be in working order, and the people at the store had installed on the hard disk all the software supplied with the mouse and the VGA card."

Bored looks were exchanged among some of the gurus present, but Hapless didn't notice.

"Anyway, I needed to clear some space on the fixed disk for XENIX, so I ran 'fdisk' to delete the DOS partition."

Someone across the table peered over wire-rim spectacles at him: "You didn't back it up first?"

"Of course not. I mean, what would be the point? I don't want to run DOS, I want to run XENIX."

"Well, what if something went wrong during the XENIX installation? At least you could put the DOS software back easily."

Hapless blushed. Another guru, the Voice of Reason in a red flannel shirt, covered the embarrassed silence that followed: "Well, as I understand it, the XENIX installation procedure is really very easy: a bootable installation floppy ("N1") goes in drive A: and the system is restarted.

"From that point on, an installation program takes over and creates a partition for XENIX on the hard disk, builds filesystems on that partition, and moves over just enough software to make a runnable system on the hard disk. Once XENIX has been booted from the hard disk, another installation program supervises the loading of the rest of the XENIX software. What could be easier?"

A grizzled-looking guru piped up, "I recollect that the hard disk setup is a little more complicated than that. First the program displays info about the fixed disk it thinks you have and asks if you want to change anything. After that a XENIX partition is created on the hard disk, then another program looks for any bad tracks on the partition and lists them in a bad track table, and then the swap area and the filesystems get set up.

"At each step a different menu is put on the screen that has some numbered choices, and you can either pick one of those or type 'q' to quit. Well, everybody knows that 'quit' means quit, and I must have fidgeted with the first menu for 45 minutes before I figured out that you had to type 'q' to get to the next step."

"He never was too bright," someone whispered to Hapless.

Another voice chimed in, "You know, I once installed XENIX on an AT clone that hadn't been set up right, and when it came time to find the bad tracks, it found so many it couldn't allocate a big enough table to log them all. It turned out that the disk info it was reading was all wrong because no one had run a setup utility that was supposed to identify the hard disk correctly. I guess we could have figured that out from the display of disk info that comes up at the start, but nobody knew what values were correct."

The grizzled veteran picked up the thread again: "And once you get the fixed disk partitioned, it has to be mounted as a file system before any software can be copied over to it. 'Course, the installation program takes care of all that, but I remember installing XENIX once a long time ago when the mount failed, and the installation program tried to copy its contents into one of its own subdirectories."

Everyone seemed amused by this, so Hapless laughed politely.

"Of course, the XENIX installation floppy isn't writable, so it didn't really hurt the floppy disk one bit, but it sure did put up a mess of error messages. And then there was the time..."

Another guru interrupted this reminiscence,

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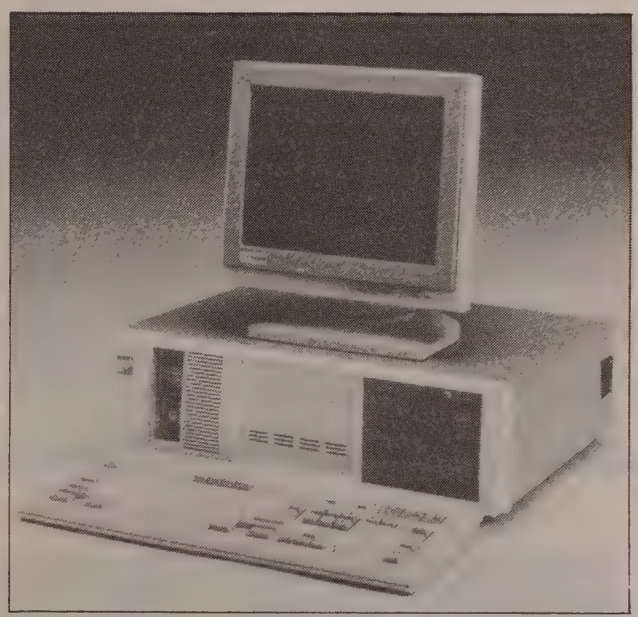

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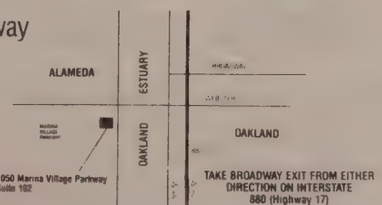

"What did happen, Hapless? Did you get your XENIX installed all right?"

"Uh, no. I put the N1 floppy in drive A: and rebooted like you said, and I got the ROM BIOS sign on message and a display from the memory check. There was activity on drive A: and a message appeared:

Boot

:

"I pressed return and there was a message from XENIX saying it was booting from device fd(52). I guess that's the floppy drive. Then there were several seconds of disk activity after which the screen flashed once and was redrawn in large low-res characters.

"The system was dead, and I used every combination of keystrokes I could think of to resurrect it, but nothing worked. I went through the whole thing twice more with the same results.

Everyone around the table had suddenly become interested in Hapless' story.

"That's really odd," someone said.

"Yes. After the informational message about what drive you're booting from, you should see a copyright message and a hardware diagnostic that tells you what's installed. You're not even making it to the copyright message. Wow."

"I know," said Hapless. "And the screen doesn't ordinarily flash reverse video either. I thought the problem might be the display adapter, so I pulled the VGA card out, adjusted its switches for every emulation it was capable of, and rebooted. The visual symptoms changed a little from mode to mode, but the bottom line was always the same: XENIX refused to boot.

"I thought the problem might be the display adapter, so I pulled the VGA card out, adjusted its switches for every emulation it was capable of. XENIX refused to boot. Tech support said my VGA card must be the problem."

"Of course, this happened on a weekend, and technical support at SCO operates Monday through Friday, so I had to content myself with making a 5MB DOS partition and running arcade games at warp speed."

"I told you you should have backed up that DOS partition," the bespectacled guru chided.

"Anyway, today I called technical support and when the analyst called and heard the symptoms she said that the VGA card I've got must be the problem. The trouble is, I don't know what to do. I'm beginning to feel like I've wasted a lot of money on stuff that's not compatible."

After a moment's silence, the guru in the red shirt asked, "Is there any chance we could test this installation some more?"

"Sure, why not? When do you want to look at it?"

"How about right now?" the guru ventured, and when Hapless mumbled his assent, they all sprang in action putting on jackets, settling up their bar tab and looking for the keys to the microbus. They detoured by the gurus' lab to pick up a bulky box that Hapless guessed was a monitor.

As they drove on, the red flannel guru explained: "I'm not sure what the problem is with the VGA card you have, but XENIX runs just fine with the Compaq color card, and I think that's VGA compatible, so it's reasonable to suspect that other cards will also work. Anyway, we got this new monitor and card the other day and haven't had a chance to check them out."

When they arrived at Hapless' place, he noticed that the monitor they lugged in was a Zenith Flat Tension Mask Color Monitor with a Z-449 card. While some of the gurus unpacked the monitor, Hapless demonstrated the problem he had described earlier for the rest of them. Everyone agreed that Hapless was indeed having a problem and, brandishing screwdrivers, they removed the cover from his computer and set about replacing the display adapter.

Within minutes everything was connected. Hapless inserted the N1 floppy and turned on the power. For a few seconds there was no sound other than the hum of the computer's fan and the whir of the floppy disk drive, but when the screen cleared and the SCO XENIX copyright message appeared, polite applause filled the room. The rest of the installation went without a hitch. □

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Wiretap-Hungry DAs Threaten ACA 36

By Brock N. Meeks

This column is either an epitaph or a campaign platform.

Should it turn out to be an epitaph, the tombstone will read: Here Lies the First Hope of Free Speech in the Information Age. Likewise, the campaign platform slogan will likely read: Vote Freedom; Vote Yes on ACA 36.

I'm talking, of course, about Assemblymember Gwen Moore's (D-L.A.) proposed amendment to the California Constitution, otherwise known as the "Freedom of Electronic Speech" amendment.

As this column goes to press, ACA 36 is teetering on the verge of defeat. Like a criminal on death row, it awaits a midnight reprieve.

The analogy to a criminal isn't farfetched. The amendment has been treated as such by the California Attorney General's office and the California Association of District Attorneys. Let me assure you, however, the railings against ACA 36 are uncalled for, and, if I can take a columnist's license, are criminal in and of themselves.

Moore has fended off the AG and CDAA in a tireless effort to bring this amendment before the people; the process has been a struggle from day one, often appearing more like a battle than legislative protocol.

And for what? This amendment would only add some 14 words to the California constitution,

The California Association of District Attorneys sees any kind of constitutional amendment as a "potential threat" to its wiretapping expansion plans.

and delete a few others (the word "and"). Yet it contains the potential to preserve the integrity of words "spoken" via the electronic medium of computer-based communications.

Bob Jacobson, one of Moore's legislative aides and principal consultant to the Assembly Utilities Committee, is right on target when he says, "This bill will give electronic communications the same freedom-of-expression and privacy protections now enjoyed by conventional forms of speech. It will provide protections for electronic information stored on databases, like other forms of property, from unwarranted search and seizure." Hardly the stuff of "criminal" nature.

The bill has garnered support from diverse groups such as the California Library Association, the ACLU and even the phone company (after some initial juggling of the bill's text). The opposition, now, stems from the "good guys," those law-and-order cowboys at the CDAA and the AG's office.

The Smell Of Blood

The recent victory of the CDAA and AG in ramming through a wiretapping act for California has bolstered these two groups' bravado. It's provided a certain smell of blood in the air, and now they are going for the jugular; they want no constitutional amendment that might, at some future date, prevent them from further increasing powers of the wiretap act.

The CDAA delivered a letter to the Senate Judiciary Committee (where the bill will ultimately live or die) on May 16th claiming that ACA 36 is "unnecessary." Nice timing.

According to Jacobson, the CDAA was not in opposition last year, during the bill's earlier hearings. When Jacobson called to reaffirm that the CDAA hadn't previously sent any opposing letters, he asked a CDAA staffer to recheck their files. No record of opposition could be found. When CDAA Executive Director Gary Mullen found about Jacobson's call, he chastised him for "poking into the files."

Does that sound like someone with something to hide? Like maybe a hidden agenda? Bingo.

Mullen has told Sacramento insiders, in no uncertain terms, that the current wiretapping act is only a "first step" and that there are plans to "expand the wiretapping rights" in the future. The CDAA, therefore, sees any kind of constitutional amendment as a "potential threat" to wiretapping expansion plans.

As the current wiretap act stands, it is specifically limited to aural conversations only; but as we've seen with the Electronic Communications Privacy Act of 1986, which amended the federal wiretap act, electronic communications are very much in the mind of law enforcement officials. It seems the California law and order types want to be sure nothing will ultimately stand in their way when they push for expansion of the California wiretap act to include electronic communication.

You would think that, being attorneys, these guys would be open to debate and negotiation. Hardly. "Why negotiate if, by simply raising

As the current wiretap act stands, it is specifically limited to aural conversations only, but as we've seen with the Electronic Communications Privacy Act of 1986, which amended the federal wiretap act, electronic communications are very much in the mind of law enforcement officials.

opposition in a letter, you can kill a bill?" says Jacobson. The CDAA has a "lock" on the Judiciary committee; Vice Chairman of the Judiciary committee, Ed Davis (R-San Fernando) is a former LAPD police chief. And committee chairman Sen. Bill Lockyer (D-San Leandro) has said that if the CDAA opposes the bill, his committee isn't likely to pass it.

The most disturbing aspect of this, however, is that Lockyer has no reason to "go to the mat" over the bill. The bill hasn't garnered the overwhelming support from the very community that stands to lose the most: modem owners.

Zero (Electronic) Tolerance

Don't get me wrong. I'm just as much for law and order as the next guy. But when law enforcement types start laying out their not-so-secret agendas, well, I get nervous just where it might lead.

If the freedom and sanctity of my electronic communications are a threat to law and order, what next? My library card? (See my previous column on the FBI before you laugh too hard.)

I can see it now—the government starts a "zero tolerance" policy that encompasses electronic communications. Mention "roach" in a message, and within 24 hours the Drug Enforcement Agency shows up at your doorstep ready to haul away your desktop computer and all your disks. No ques-

continued on page 176

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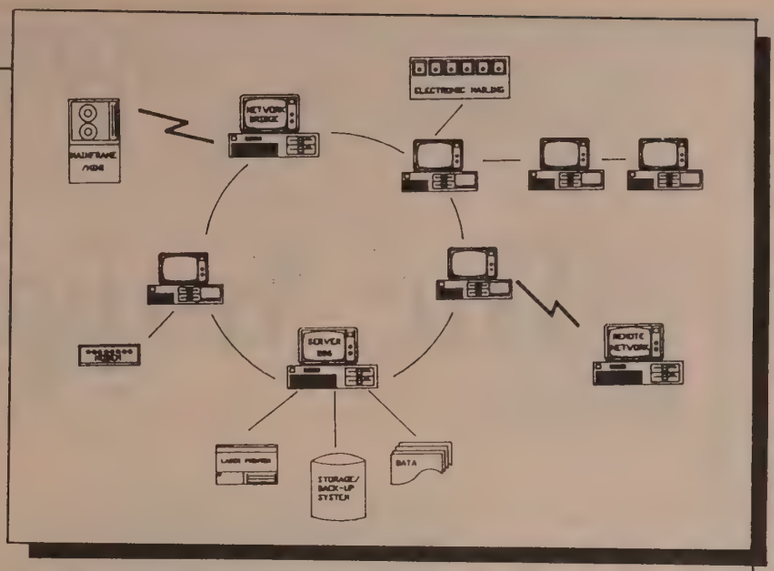

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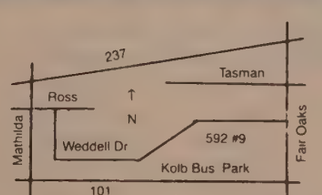

The Amiga Matures

By Matthew Leeds

Computers are like fine wine. A new vintage is a little rough around the edges. It lacks a good base of hardware and software to fulfill its promise, to round out its potential. Over time, hardware and software vendors take the measure of a new computer, examine its capabilities, understand how to create products that bring its unique qualities to the surface.

Some computers never get to this point. They don't survive the initial period of developer experimentation and consumer uncertainty.

For some the watershed point comes when the installed base of machines gets to a certain number. For others it is when the library of software available grows beyond a certain point. And for a few it is when hardware developers begin to compete with the parent company for market share with peripherals.

Regardless of how you measure the success of the Amiga, one thing is certain: it has matured. No longer is it possible for a corporate or industrial computer user to be concerned over the Amiga's stability, breadth of applications or future growth.

The installed base of Amigas passed 500,000 a long time ago. Current estimates are now in excess of 600,000. (The Mac was considered a success at 500,000; it has now passed 2,000,000.) The Amiga should pass 1,000,000 this year, and, given Commodore's marketing, in the next few years we may see sales in excess of the C64's 6 – 8 million.

The current library of software titles for the Amiga has passed 1,000. Spreadsheets, databases, word processors, graphics and video applications, desktop publishing, music and educational programs are all available in abundance. New vendors are continuing to enter the Amiga market. Sun Microsystems' TOPS division has started on an Amiga version of its networking product, Magni Systems has created a broadcast quality video graphics board for the Amiga 2000, and Commodore has announced that it's developing both System V and BSD versions of UNIX for the Amiga in support of the 68020/68881/868885 board.

Commodore has also matured as a company. There was a time when rumors of Commodore's imminent demise were rampant. Not a week passed that someone did not call me to confirm Commodore's entry into bankruptcy. Now, with two solid years in the black and a stable management team in place, Commodore is well positioned to offer not only the best home and educational computer, but to provide a meaningful alternative to the high priced workstation systems offered by others. To paraphrase the automobile ad, "have you looked at an Amiga lately?"

With two solid years in the black and a stable management team in place, Commodore is well positioned to offer not only the best home and educational computer, but to provide a meaningful alternative to the high priced workstation systems offered by others.

New Disk Drives

One of the nice things about owning an Amiga in a maturing market is that hardware gets cheaper. The increasing installed base encourages third party hardware developers to offer alternatives to products produced by Commodore. Nowhere is this more evident than in the floppy drive market. At least eight companies are currently offering internal and/or external floppy drives for the Amiga. I recently had the opportunity to test two external drives from Surfside Components International and Megatronics.

Each of these drives has several advantages over the A1010 from Commodore. They are physically smaller, with a much lower profile, and only a slightly longer case. They have a much longer connecting cable. This is especially important for A500 users, as the cable on the A1010 can restrict the placement of an external drive. Both drives use less power than an A1010. This may let you use two external drives on an A500, although this practice is not recommended.

Both the Master-3A from Surfside and the AIRdrive from Megatronics have spring loaded gates that close when a floppy disk is not in the drive. This keeps dust and other contaminants out, and makes it easier to tell if a disk is in the drive.

There are minor differences between drives. The Master-3A has a black faceplate that may not be attractive to someone who wants to maintain the Amiga's off-white color scheme. The AIRdrive is slightly smaller, but its cable is about two inches shorter than the Master-3A. The AIRdrive has an unusual setup for its activity LED. It does not come on and stay on during drive access, but flickers as the drive head steps across the disk. This can be disconcerting at first, but it may be more informative to some than a steady on signal.

Both are much quieter than a standard A1010. They also come with a full one year warranty instead of Commodore's 90 days. And they sell for less.

Report From The Road

I recently returned from two weeks of traveling that included attending the 3rd Amiga Developers Conference in Washington D.C. and COMDEX in Atlanta. A tremendous amount of information regarding new products, new directions and new marketing plans was discussed at each event, and there is no way I can cover anything but the highlights of each here.

By the time you read this, Commodore will have begun to supply developers with limited numbers of the new Fatter Agnus chip. This expands A500 and US Amiga 2000s (B2000) to a full megabyte of chip RAM. The upgrade requires modifications to the motherboard of each machine, and although it can be performed by anyone with a moderate amount of experience in such things, it most likely will be considered a dealer upgrade when it is finally offered to end users later this year. The Fatter Agnus upgrade will likely include a new Kickstart ROM V1.3.

At a later date a complete set of chips called the Enhanced Chip Set (ECS) will be offered. This chip set will include the Fatter Agnus, a new Denise, and a new Gary. The ECS will add in addition to the one megabyte of chip RAM a new display mode, Superhires. Superhires provides a 640X400 non-interlaced display in four colors. You will need a monitor that can handle a 31.5 MHz output such as a multi-sync monitor. Additional new features will include larger blits, the capability of adding a co-processor to the blitter, and other graphics improvements. Along with the ECS will come a new operating system, V1.4.

Next month I'll take a look at other Commodore announcements, and new products coming for the Amiga. □

Matthew Leeds has been involved in the high tech field since he blew up his bedroom playing with a children's chemistry kit. He has been using Commodore computers since 1982 and has a strong interest in photography, video, graphics and related fields. He currently works for Infinity Software.

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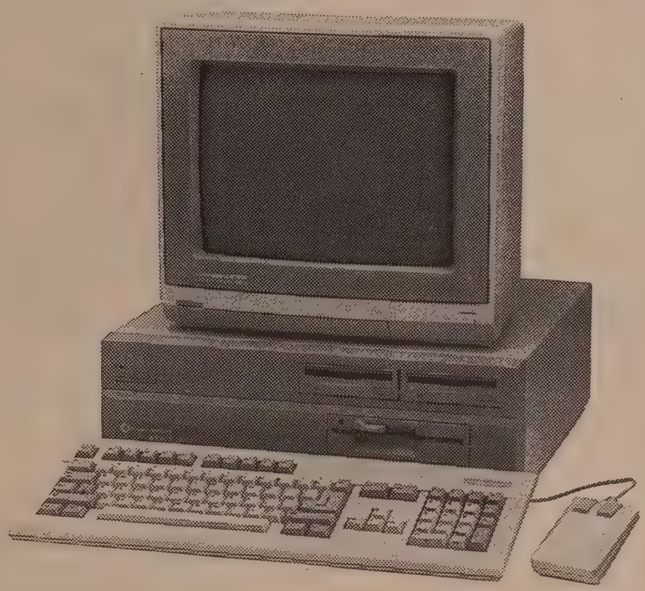

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Desktop Publishing On The ST

By David Hawkins

New desktop publishing products are starting to show up for the Atari ST. I've spent the past month learning and using *Timeworks Desktop Publisher ST*. I've been very impressed with it — it has made studying desktop publishing easier than I expected.

Setting Up A Desktop Publishing System

I'm using a 1040 ST at home. This gives me enough memory to load in a couple of fonts for screen displays and for printing. *Timeworks* will run on a 520 ST, but you would need to be careful to clear out as much memory as possible. If I were buying a system for desktop publishing I'd get a Mega 2 or 4.

You can use either the monochrome or color monitor with *Timeworks*. The added clarity from the monochrome monitor helps a lot when you are trying to get the details right. The illustrations for this article are screen dumps from the monochrome monitor.

Timeworks supports a wide variety of printers. I did several printouts with a 9-pin dot matrix printer, and it produced fonts and graphics good enough to photocopy and distribute to friends and relatives. For professional distribution I'd use a laser printer or a 24-pin dot matrix.

If you have a 520 or 1040 ST, you can use any PostScript compatible printer (LaserWriter or LaserWriter Plus), the Hewlett- Packard LaserJet Plus or II, and other compatible printers. If you have a Mega 2 or Mega 4 then you can use the Atari Laser printer.

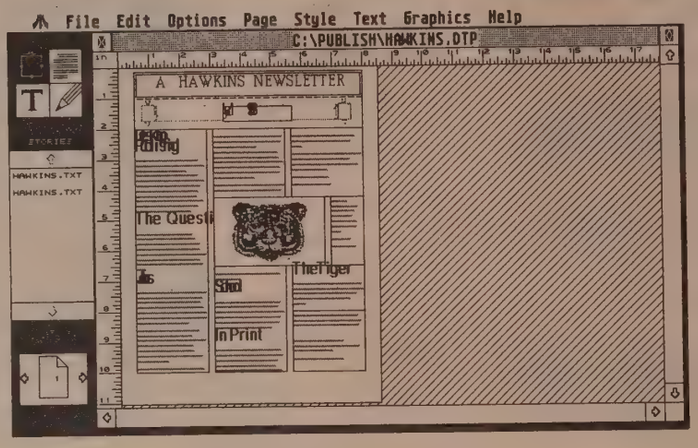
If you have the ST, but don't have the printer, you can create the document and then find someone to print it for you. Some Atari dealers (like Microworld in Berkeley) have a Mega and a laser printer setup and can print for you at a reasonable cost. Other dealers (like PC Options in San Francisco) can line you up with people who will print for you. This is what I'll be doing until I can save up for a Mega 2 or 4.

Setting Up Timeworks

It is possible to run *Timeworks* on a system with just one single-sided disk. It's a little more manageable when you have two disk drives. I'm using a hard disk, which is the optimal way to go.

Timeworks is not copy protected, so you can make backup copies, as well as install it on a hard disk.

Timeworks comes with an INSTALL program, which simplifies the installation process. The manual includes adequate explanations of the installation procedure, as well as clear directions.



Timeworks Desktop Publisher ST supports a sophisticated range of options and allows even the novice user to put attractive documents together in a few hours.

Using Timeworks

The manual features a program overview that explains the icons and terms that are used in the program. From there it goes into a "mini-manual" that uses a sample document to show what the program can do. It describes how to show, add to, format, save and print the document, plus how to manipulate graphics.

This was how I got started. I followed the instructions and found that the process was easy and clear. So I took the sample document and converted it into a "Hawkins Newsletter" (showing a clear lack of imagination in inventing titles).

Timeworks has several types of display. You can look at a page that is sized to fit so that it can be examined for overall layout, or as normal size, or doubled in size. In some of the sizes you can't read the text, but you can see what the overall effect of the design is going to be. Working in normal or double size allows you to check and fix the fine details.

The Text

I wrote the text to be used with *WordUp* (described in last month's column) and saved it as ASCII. When I started the "Hawkins Newsletter" I read it into *Timeworks* and had it flow into the frames I'd created for text. I tried using a couple of different fonts in the text, but found that the books and manual were right: it looks better if you only use one or two fonts in the entire file.

Graphics

Timeworks can use pictures from *DEGAS, Neochrome, GEM Draw, Easy Draw* and some other art programs. The tiger drawing is part of the sample artwork provided with *Timeworks*. The program gives you the option of changing the scale to make the art fit the frame for it, or show it in true perspective. I left the tiger in true perspective, shortened the width of the frame and added a frame with a quote to the right of the picture.

Where To Next?

Within a few hours I had created a one-page newsletter to mail out to family and friends. I also had learned enough about the program to know that I'd just barely touched its capabilities. *Timeworks* can create master pages, which make it easier to do multi-page work. It has a number of hyphenation and justification options that I didn't use. Right now I'm looking for a few more ambitious projects to do using *Timeworks*. It's going to be fun!

A Game To Avoid

Shadowgate is the biggest waste of money I've made this year. I almost mentioned that in last month's column, but decided to give it a few more tries. It's basically an unplayable game. ICOM and Mindscape will gladly sell you a hint book, but it didn't help me either. Everyone I've found who finished this game had to get help by having another person sit down and show them how to get certain things done. (People who have played *Shadowgate* are very helpful and encouraging, but the game isn't advertised as a team project.) The game lacks logic and the graphics aren't worth the $50. □

David Hawkins is the host of the Atari conference on The WELL (415/332-6106); send email to dhawk. *He can also be reached as David Hawkins on the Guild (415/771-7062). He has one of the first Atari ST 1040s sold in San Francisco, both monitors, an Okimate 20 color printer, and disks all over the room.*

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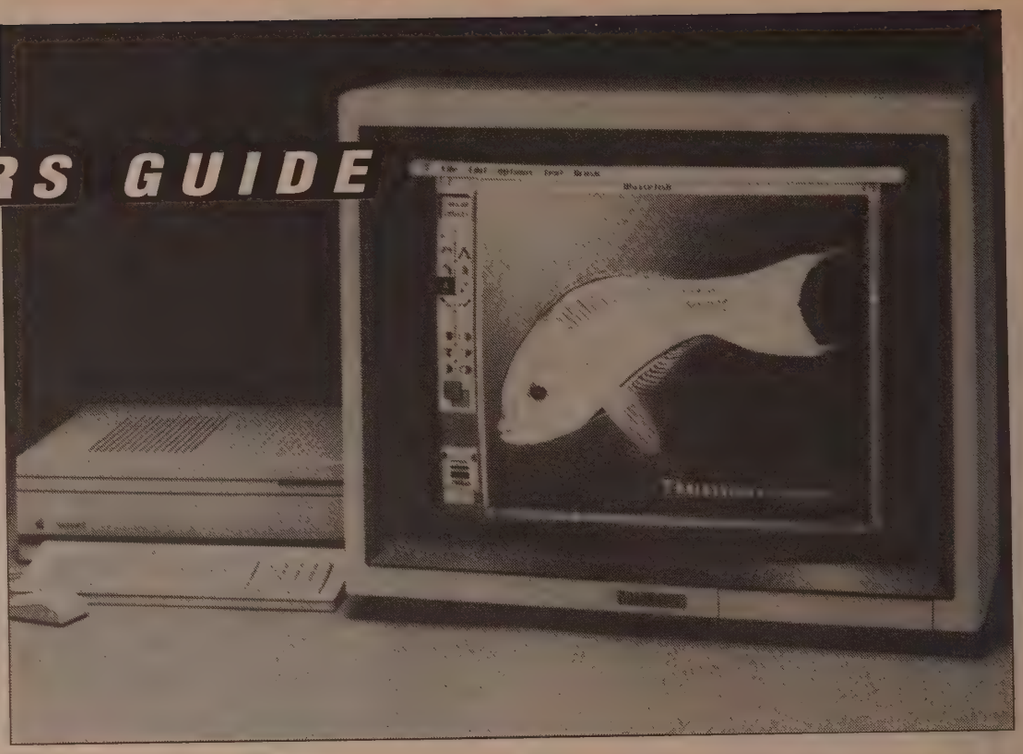
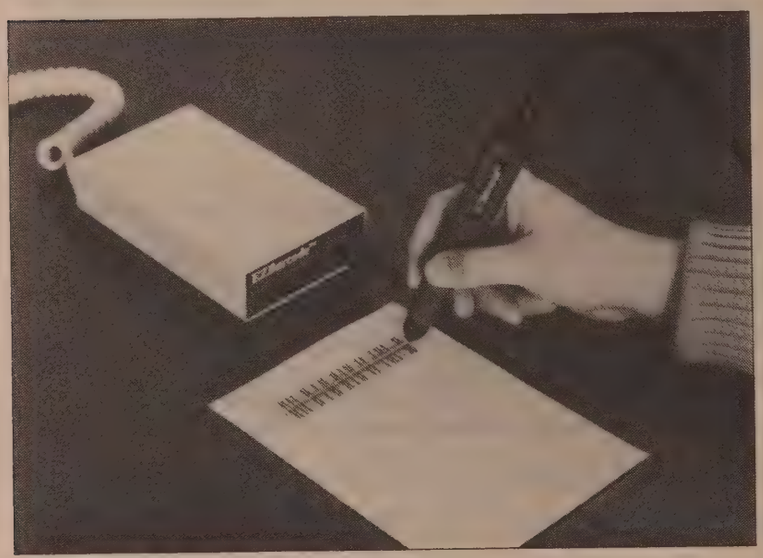


33" Mitsubishi Color Monitor Provides Alternative To Projection Screens

The new XC-3310 auto-tracking monitor provides plug-and-play convenience to the user, requiring no internal adjustments from a VCR or computer. Mitsubishi's 33" monitor accepts either TTL, analog or television-type NTSC input signals. It is fully IBM VGA and EGA/CGA compatible and runs with PC/XT/AT or compatible computers, as well as PS/2 and Mac II machines. The XC-3310 measures 30" X 26" X 22" and is available with an optional rolling base. ($5,495.00). Mitsubishi Electronics America, Inc., Computer Peripherals Division, 991 Knox St., Torrance, CA 90502. (213) 515- 3993.

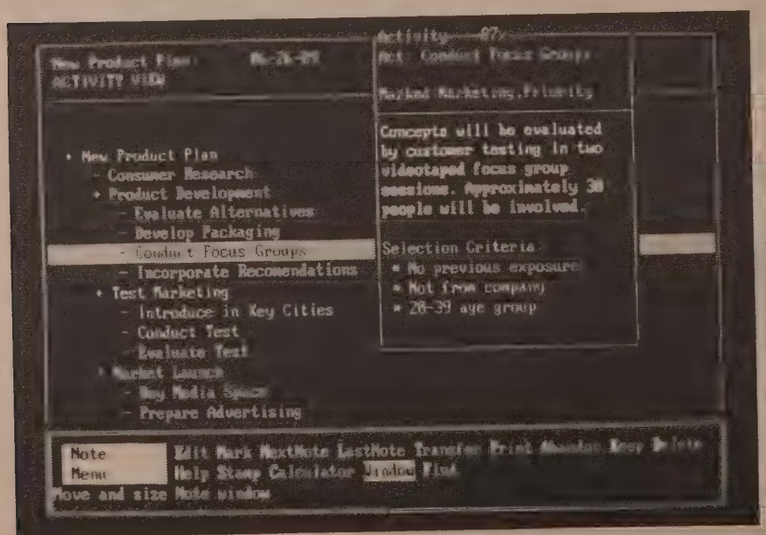


Handheld Bar Code Reader Requires No Software

Model PC-Wedge Bar Code Reader reads four bard code types: Code 39, Interleaved 2 of 5, Codabar and UPC/EAN — without software or a separate power connection. Compatible with PC/XT/AT and compatible systems, PC-Wedge connects between the keyboard and computer and features a light wand that reads in both directions. ($289.00). TimeKeeping Systems, Inc., 12434 Cedar Rd., Cleveland, OH 44106. (216) 229-2579.

New Color Bundle From Relisys Supports All IBM Graphics Modes

The Color Bundle RS9513, designed for IBM PS/2 systems, consists of a Relisys 14" color monitor and Orchid's VGA. The VGA card supports all 17 IBM graphics modes with VGA and EGA register-level hardware compatibility. It also features backwards compatibility to CGA, MDA and MCGA modes, 132-columns, three windows with zoom, plus hardware horizontial pan and vertical scroll, and two downloadable fonts. The 14" RS9513 monitor has a non-glare surface and provides 15% more viewing area than the comparable IBM monitor. ($895.00). Relisys, 320 South Milpitas Blvd., Milpitas, CA 95035. (408) 945-1062.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InstaPlan users can now attach notes, memos and reminders to plan activities, resources and work assignments. A single plan can have up to 3,000 notes. Opened by a keystroke, *Note Pad* provides the ability to assign notes to user defined categories and introduce text from other programs. Elements which contain notes appear highlighted, or the word "note" appears in the menu box, as the user chooses. In hard copy, the note appears directly after the plan element. A single note as long as 8000 characters (four double spaced pages) can be entered. ($70.00). InstaPlan Corp., 655 Redwood Hwy., Suite 311, Mill Valley, CA 94941. (415) 389-1414.

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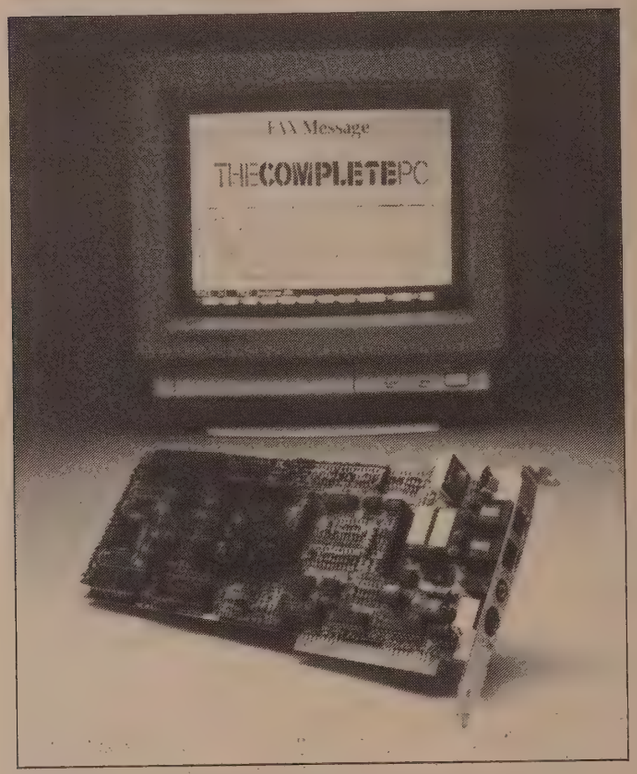


Complete PC FAX/9600 Works In The Backround, Features Scanner Port And Optional Modem

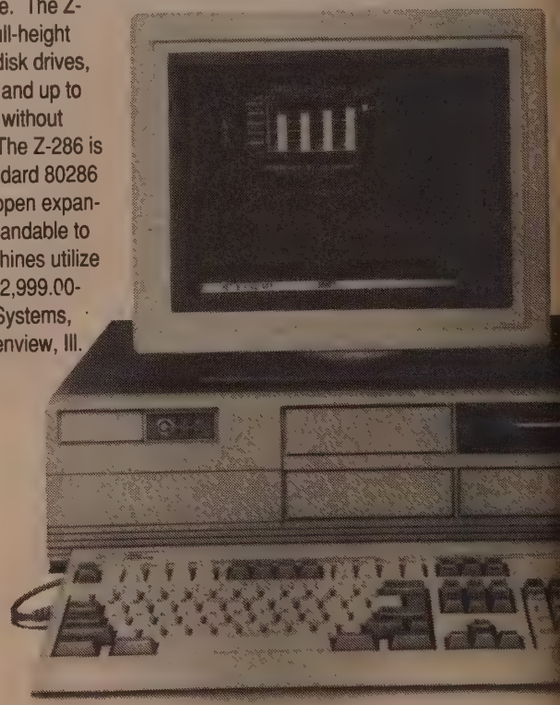
The CFAX/9600 hardware/software system offers true background capability in a 9600 bps facsimile board. In addition, the CFAX supports faxing directly scanned images from HP, Microtek, DEST and The Complete PC scanners, and direct word processor-to-fax operation. An optional 2400 bps Hayes-compatible modem is available with *ProComm* software for $199.00. ($599.00). The Complete PC, Joel Borden, Milpitas, CA 95035. (408) 434-0145.

Dolch Provides New Cache, EGA Options For PAC Portables

A new 64K RAM cache has been built into the optional 16 and 20 MHz zero wait-state motherboards for Dolch 386 PAC portables. In addition, Dolch offers an EGA-compatible gas plasma display option for all its portable computers. The display produces red characters on a black backround with 640 X 400 pixel resolution. The motherboards add $1,000.00 to the price of a machine; the plasma/EGA display costs $2,500.00. Dolch American Instruments, 2029 O'Toole Ave., San Jose, CA 95134. (408) 435-1881.

Two 286s From Zenith Offer Speed, Expandability And Compact Size

Zenith Data Systems' new Z-248/12 and Z-286 LP give the 286 user a choice between expandibility and small size. The Z-248 offers space for two full-height and two half-height 5.25" disk drives, four open expansion slots and up to six megabytes of memory without using an expansion slot. The Z-286 is 60% smaller than the standard 80286 system and includes two open expansion slots. Memory is expandable to six megabytes. Both machines utilize zero wait-state design. ($2,999.00-$6,799.00). Zenith Data Systems, 1000 Milwaukee Ave., Glenview, Ill. 60025. (800) 842-9000.



Color Printer With Video Interface Produces Nearly 5000 Hues

The new Mitsubishi G330 color printer captures video signals directly from graphics controller boards such as IBM CGA/EGA, VGA and Apple Macintosh II. Its video interface enables the G330 to output any image viewed on the CRT in up to 4,096 hues. Because of its screen dump capabilities, the G330 can print from a variety of software packages without special software drivers. Output is 150 dpi resolution. ($5,900). Mitsubishi Electronics America, Inc., Computer Peripherals Division, 991 Knox St., Torrance, CA 90502. (213) 515- 3993.

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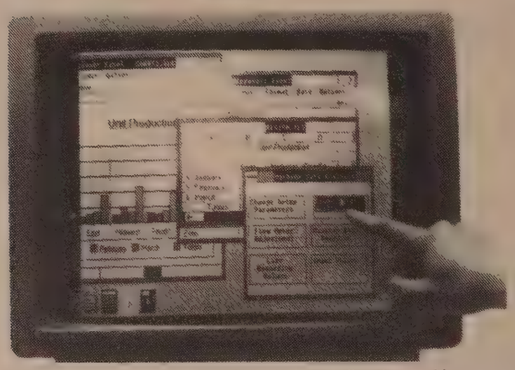

WindowsDriver Brings Users In Close Touch With Microsoft Windows Applications

Users of MicroTouch Systems' MicroTouch Screen can now use Microsoft's *Windows* with their touch screens. *Touch WindowsDriver* is a software package that allows the MicroTouch Screen to be used with all *Windows* applications. Users can choose from menus, create drawings and manipulate windows by touching the screen, without orienting and clicking a mouse. The user can point to any size icon or menu item and locate the cursor down to the pixel level. ($695.00). MicroTouch Systems Inc., 10 State Street, Woburn, MA 01801. (671) 935-0080.

Advanced WordPerfect Package Now Available For 4.X And 5.0

Module 3 of the Teaching Assistance Package for *WordPerfect* 4.X and 5.0 introduces experienced *WordPerfect* users to the special features of the software program. Editing features such as footnotes and endnotes, redlining and strikeout are explained. Outlines, tables of contents and numbering of paragraphs are also covered. The module includes an Illustrated Teacher's Guide and 157 full color slides packaged in two display cases. ($995.00). TAP Development Corp., 1820 E. Sahara Ave., Suite 200, Las Vegas, NV 89104. (800) 231-5455.

New Interleaf Software Integrates Text And Graphics Handling Capabilities

Interleaf Publisher and *Interleaf Publishing Series RT PC Edition,* provide advanced desktop publishing capabilities to the PS/2 and RT PC. The *Interleaf* products integrate text, graphics and image capabilities into a single package to enable users to produce lengthy, complex documents more easily. The programs will immediately reposition text and graphics to accommodate new material inserted in a long document. *Interleaf* software is the result of a new development and marketing relationship between Interleaf, Inc. and IBM Corp. ($2,495.00/$6,595.00). Interleaf, Inc., Ten Canal Park, Cambridge, MA 02141. (617) 577-9800.

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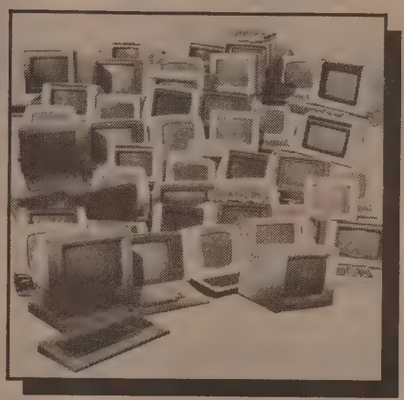

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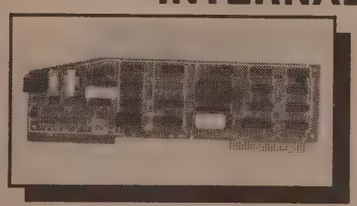

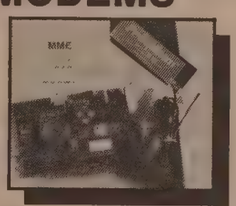

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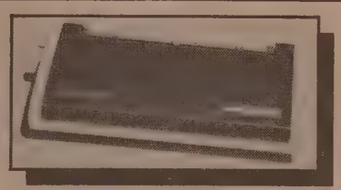

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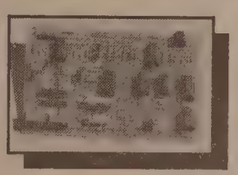

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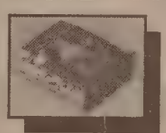

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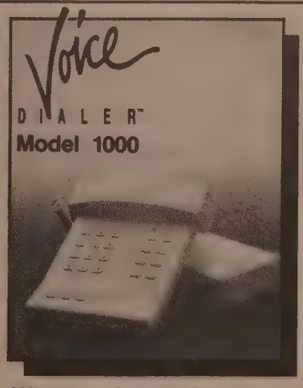

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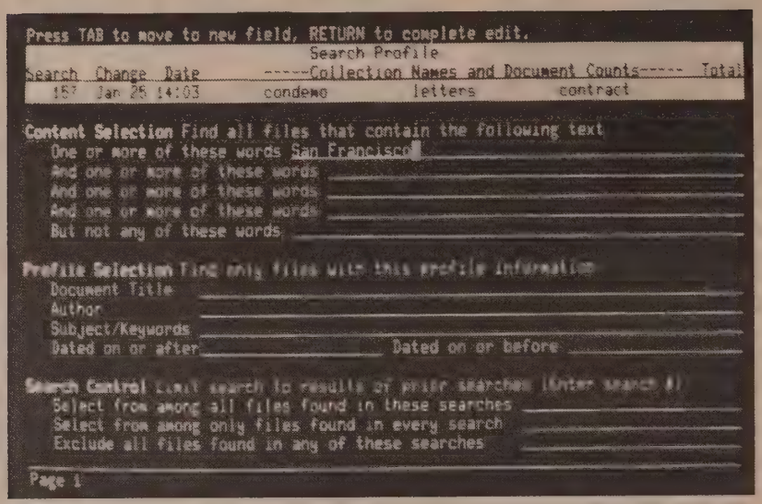
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Page 1

CONTEXT Gives Mainframes, PCs And SUN 3 Workstations Text Searching Capabilities

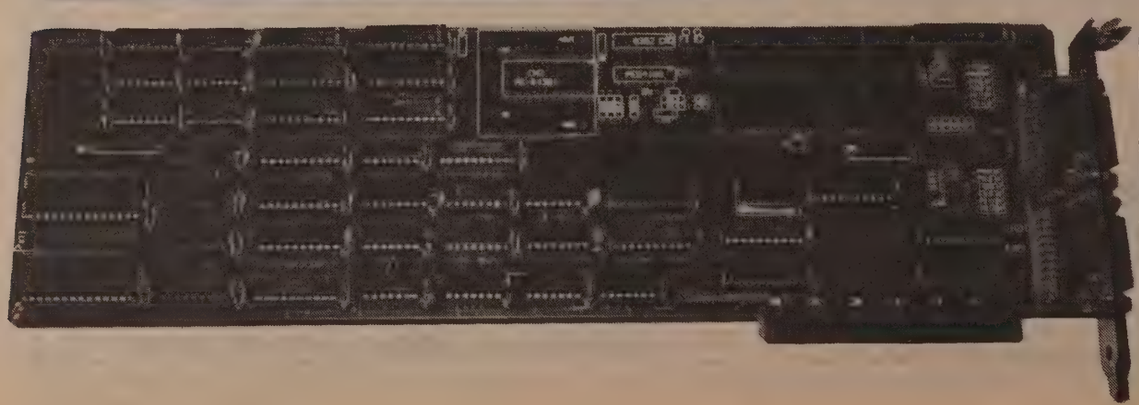
LatiCorp's new *CONTEXT,* available for the IBM PC/AT and SUN 3 and HP9000 workstations, as well as mainframe computers, can simultaneously search up to three collections each containing two billion documents. *CONTEXT* allows ASCII files, C sources and formatted word processing documents to be searched without structuring and defining fields in advance. Searches may use Boolean, proximity, limiting and ranging operators, a synonym thesaurus and a stop list. ($495.00 to ($47,995). LatiCorp, Inc., China Basin Building, 185 Berry St., Suite 4820, San Francisco, CA 94107. (415) 543-1199.

Fetch! 4.0 Aids Network Users In Locating Lost Files

LAN users and administrators can now locate lost files and files created by others with *Fetch!,* a memory resident program that adds a three-line description to a file name. *Fetch!* automatically requests the identifying information when a file is created. Its "Intelligent Soft Search" capability enables it to locate a file on the basis of a word or phrase that matches the file's description. It then displays the name, location and description of the file. A hard disk and 69K of RAM are needed. *Fetch!* is compatible with IBM PC/XT/AT 80386s and compatibles. ($395.00). Thought Dynamics, 1142 Manhattan Ave., Suite CP-310, Manhattan Beach, CA 90266. (213) 371-7471 or (213) 546-2958.

SPLASH! Provides 256 Thousand Colors On PS/2 Series IBMs

Owners of IBM PS/2 systems can take advantage of their machines' VGA capabilities with *SPLASH!,* a paint program with 256 thousand colors. Users can choose to display up to 256 colors simultaneously with 320-by-200 pixel resolutions. *SPLASH!* provides 60 different patterns and brush sizes, color fills, stamps, spray cans and a variety of geometric shapes. The program is compatible with *PageMaker, Ventura Publisher* and other desktop publishing programs. *SPLASH!* requires a memory of 640K and produces files that work with TIFF and PC Paintbrush. ($99.95). Spinnaker Software, One Kendall Square, Cambridge, MA 02139. (617) 494-1200.



KTI Introduces EtherBridge 1.0 MAC Layer Bridge For Network Managers

EtherBridge 1.0's network management capabilities give the network manager a display of on-going network activity. Twelve network parameters are displayed and can be updated and analyzed with the touch of a key. Consisting of a two-port Ethernet card and bridging software, EtherBridge is designed to run on an IBM PC/AT, 386 or compatibles. It can process over 13,000 pps and forward over 6000 pps. ($2,980.00) KTI, 2157 O'Toole Ave., Suite H, San Jose, CA 95131. (408) 435-5058.

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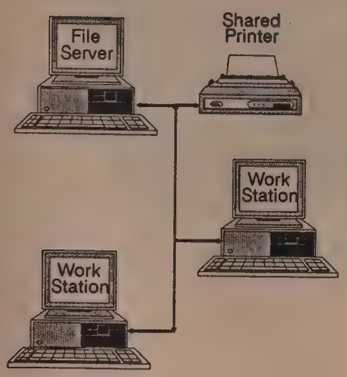

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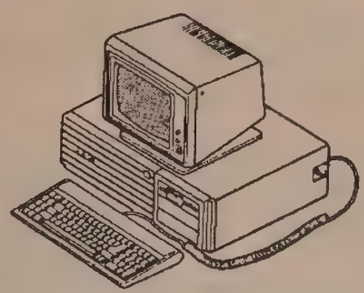

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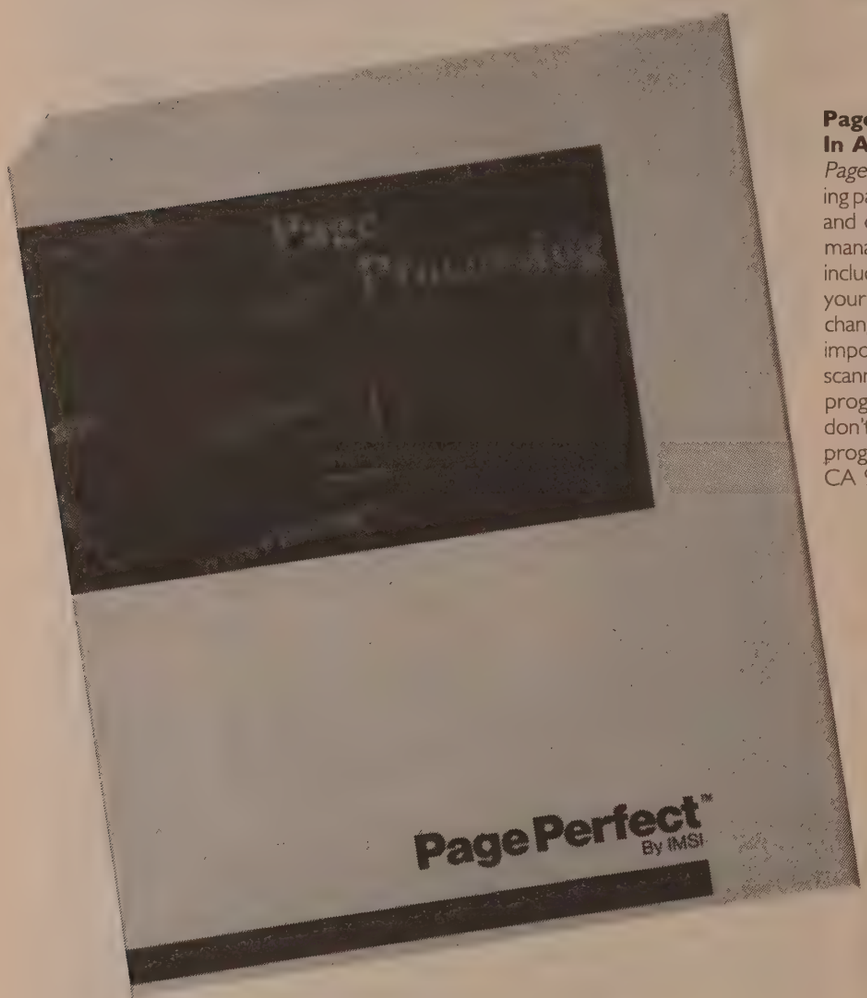

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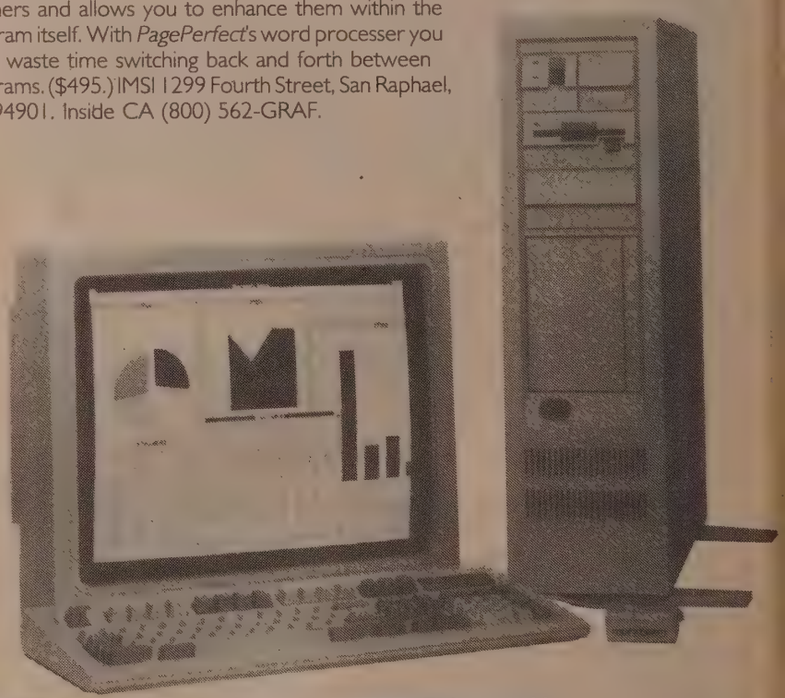

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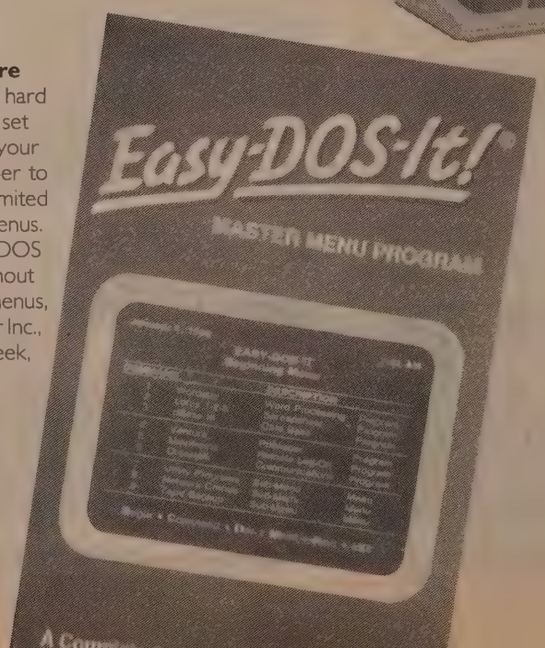
Easy-DOS-It from BMS Computer Inc. is a hard disk organizer and DOS shell. It allows you to set up a menu numbering the applications on your hard disk. You then simply choose a number to get your application going. It allows an unlimited number of user-defined menus and sub-menus. It also allows users to create help screens. Its DOS features include DOS command entry without leaving *Easy-DOS-It* and pre-defined DOS menus, sub-menus and help screens. BMS Computer Inc., 375 North Wigit Lane, Suite 210, Walnut Creek, CA 94598. (415) 938-2620.



Viking I Monitor Enhances Use Of Windows 386
The 19" Viking I monitor from Moniterm now comes with a software driver for Microsoft *Windows 386* that supports a resolution of 1280 x 960. *Windows 386* allows 386 machines to run several "virtual" machines in a multitasking environment. The Viking I's large screen area not only allows several programs to be on the screen at the same time, it also keeps them highly readable. The EGA Viking I can also be used for non-386 machines such as the IBM PC/AT and IBM PS/2 models 50 and 60. ($2,395). Moniterm Corporation, 5740 Green Circle Drive, Minnetonka, MN 55343. (612) 935-4151.

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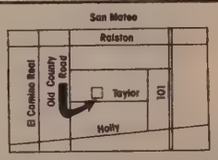

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Dinosaurs Are Forever

By: *Brian Rice*
Published by: *PolarWare (1988)*
For: *Apple II (128K); IBM PC and compatibles*
List price: *$29.95*
Reviewed by: *Mike Markowitz*

Does anyone understand the special love between kids and dinosaurs? Perhaps it's the poignancy resulting from the extinction of one of the parties some 65 million years too soon. This makes dinosaurs creatures of the imagination, the natural habitat of children.

Whatever the explanation, a dinosaur theme is a sure bet for any software package directed toward younger users. *Dinosaurs Are Forever* is an electronic coloring book, featuring some 26 different frames that can be colored, saved, and printed in various ways. The program requires 128K of memory, and is especially nice with a mouse, a color monitor and a printer that supports color output. The package label says "Ages 3 and up"—a claim that will not be startling to anyone who has seen Alan Kay's remarkable videotape of a toddler using *MacPaint*.

From our familiarity with present-day lizards, we think of dinosaurs in dull brown or green, but many other reptiles (and their evolutionary offshoot, the birds) blaze forth in every brilliant hue. There is no reason not to imagine a crimson ceratosaurus, or a turquoise triceratops.

You can print out your dinosaur with an explanatory text, or with a simple calendar for any month of any year. There is a sheet of stickers for special days on the calendar; and a simple "family tree" that outlines the evolution of the dinosaurs.

The program is not copy protected. A four-page leaflet provides complete instructions for setup and use. The list price is perhaps a bit high for a single home user, but quite reasonable for schools. (PolarWare, 1055 Paramount Pkwy. Suite A, Batavia, IL 60510 (312) 232-1984.)

Bridge Baron II

Published by: *Great American Games*
For: *Apple II, Commodore 64/128, IBM PC/XT/AT compatibles, Macintosh, Atari ST*
Reviewed by: *Robert D. Athey Jr.*

Tom Throop is a bridge expert in his own right, having won major bridge tournaments in the US and abroad. A few years ago, his company brought out two bridge game programs, one of which won the tournament where such programs were rated by having them play each other. That program was *Bridge Baron*, which has now been updated/upgraded to make it easier to play. Although my review copy was for MS-DOS, there are versions for the Apple II, Mac, Commodore 64 and 128, and Atari ST.

Bridge Baron II, a 170K+ single program, can be used in color or in monochrome, although the added red on the cards is a winner. The colors may be changed with an opening menu. The second menu offers five choices of the options on play (keep rubber bridge score? weak or strong two opening bids? etc.) and the choices continue in the play.

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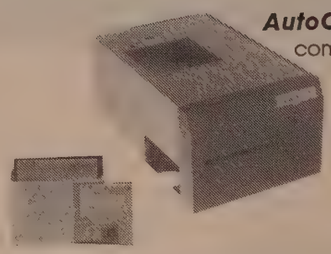

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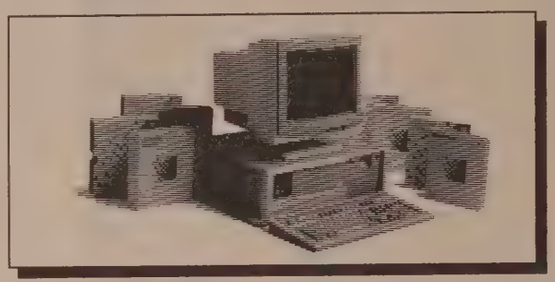

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The program is started by simply typing in "BARON" with a carriage return. The first menu asks about color monitor, with a default "Y" for yes shown. All *Bridge Baron* queries show a default that may be accepted by a simple carriage return. The second menu, described above, may be accepted with a carriage return in this manner. The next screen queries as to the number of the deal to be played (with #1 as the default); you type in the number you want.

The next screen shows a hand querying if you want to bid it, or if you want the computer to do the bidding. When you accept, the computer asks if you want to designate the opening bidder, or if the computer should. You can respond to the displayed bidding sequence by entering a "P" for pass, a "D" for double, or a number and first letter

The tournament-winning program Bridge Baron has now been updated to make it easier to play. It can be used in color or monochrome, though color is preferable.

of the suit to be bid. Upon the completion of bidding, the screen shows the hands to be played — yours and the dummy's — and the play starts.

You ask the computer to play the hand with a "‹CONTROL›A", or you can type in each card you want played. Frequently, you can play the hand better than the computer will on automatic play, but the computer does do tough defense. The computer opponents will frequently get to makeable contracts, game or slam, and you have to find the killing defense. Some hands can't be beaten, but you can beat them frequently enough to keep it entertaining.

Another option lets you claim all the rest of the tricks (with the up arrow key) and terminate play early, a great option. You may also concede all the rest of the tricks with the down arrow key, whether or not you'd lose them, just to get on to the next hand (or to replay/rebid this one better). That's handy if you arrive at an incorrect contract, and want to bid the hand again.

After the hand is played, the options menu comes up again, and you can choose to replay the same hand or get a review of all the holdings in the four player directions and a review of the play trick by trick. That's really good if you want to examine for the killing defensive play you could have made, or the way to make the most on your declarer play.

The program offers some interesting bidding and play problems. The computer's defense or offense won't let you bluff, so you'd better be on your toes. The menus make the start of play very easy, and it's quick to get into playing, a real plus. You'll really enjoy this one, if you play any bridge at all. Indeed, this is a good gift for any bridge player you know. We play this one for a few hands just about every day. (Great American Games, 8804 Chalon Dr., Bethesda, MD 20817.)

The Computer Edition Of Scrabble

Published by: *Virgin Games Ltd.*
For: *Apple II+, IIe, IIc*
List Price: *$39.95*
Reviewed by: *Mike Markowitz*

There are so many good things available for the Apple II that I try to avoid reviewing programs that are truly bad. "If you can't say something

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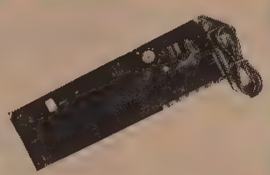

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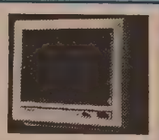

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What's Happening?

Check the MicroTimes Calendar of Events in this issue for computer-related classes, seminars, and shows in your area.

nice, don't say anything at all" — I was taught that as the essence of good manners.

But when they take your favorite board game and turn it into a truly awful computer program, who can remain silent? The turkey in question is the Apple II version of the *Computer Edition Of Scrabble.* It appears to have been written in BASIC. The program disk employs a horrendous copy-protection scheme that elicits frightening noises from a disk drive. Although the game booted readily on a Laser 128, it required several attempts to get it to boot on a IIGS.

Before you can play, the game forces you to make a lot of choices about difficulty levels and time limits. Although color is an option, the text is almost illegible in anything but monochrome. It takes a long, long time to check each word against a 20,000-word dictionary, accompanied by much disk access and gnashing of drive head stepper motors.

The fifteen-page manual requires two pages of errata, and still manages to be confusing. You can have up to four players, and the computer can play one or more positions. A game in progress can be saved to an Apple DOS 3.3-formatted disk.

The program is manufactured in England under the Leisure Genius label and distributed in this country by Electronic Arts, which should have known better. This implementation of a classic game may be deep, but it is neither fast nor hot. The legal rights and permissions seem to involve several holding companies on both sides of the Atlantic — not the best environment for software development. On a faster computer, with a better DOS and a better dictionary search algorithm this game might have been playable. Those who love Scrabble will avoid this version at all costs. (Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404.)

BOOKS

The IBM PC-DOS Handbook — Third Edition

By: *Richard Allen King*
Published by: *Sybex, Inc.*
Price: *$18.95*
Reviewed by: *Robert D. Athey Jr.*

This updated edition is dated February 1988, and deals with the latest versions of PC-DOS.

The book is divided into three sections — a very short introductory section describing how to use the book, about 40% of the book aimed at programmers as the second section, and the remainder targeted to the rest of us. This separation is a delight to me, as there are details of addressing I/O ports I don't need, want or have to know. My mind is too cluttered already.

The programmers' section has nine chapters. The first deals with the basics of the 8088/8086 chips, registers, function calls and interrupts. Subsequent chapters deal with details of file structures, disk organization, keyboard input, and output to monitors or serial/parallel ports. Memory and special programs are also covered, including networking.

The users section doesn't go into memory locations, function calls and such. It explans the programs the everyday person can use in a manner that's easy to read and understand. After an intro-

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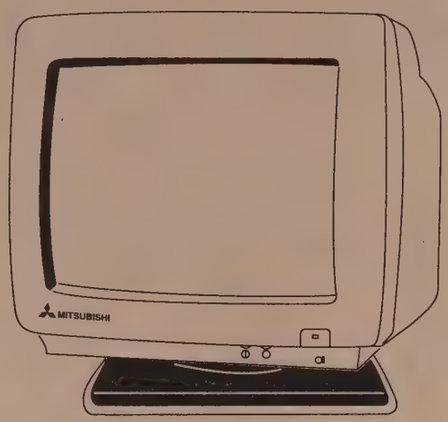

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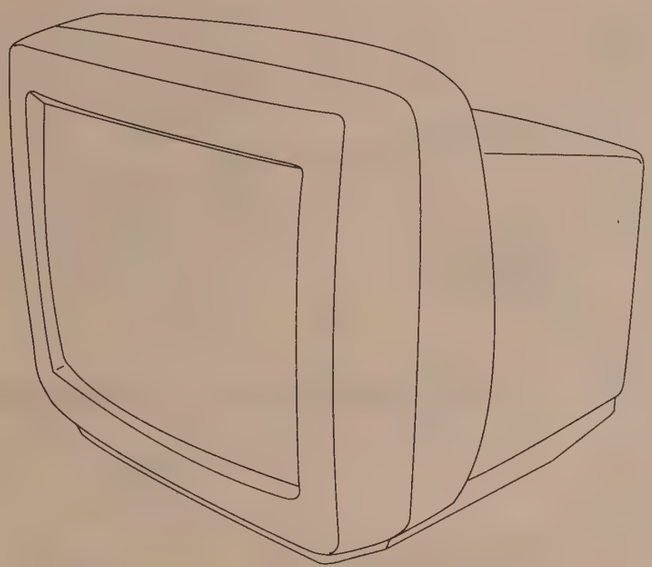

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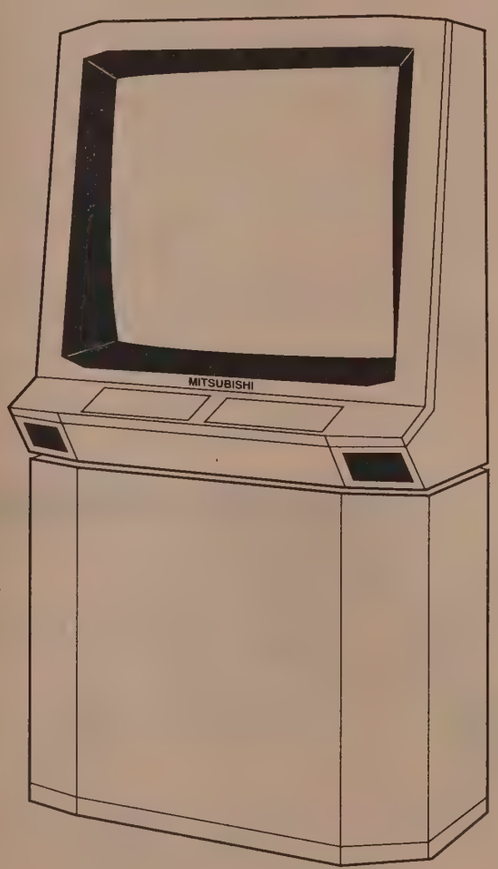

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ductory chapter, the chapters deal with EDLIN, the files/directories and trees, configuration commands, and batch operations. The next chapters show how to deal with monochrome and color/graphics screens, and with use of the serial port. A very technical chapter goes into the DEBUG program, as a way to get the user into assembly language programming.

The last 10% of the book consists of appendices. The first covers compatibility of MS-DOS and PC-DOS. There are differences, sometimes in names of programs that do the same thing, and sometimes more significant. The second appendix shows the varying versions of PC-DOS, with emphasis of the enhancements from one version to another. Subsequent appendices deal with more technical detail — function calls, interrupt vectors, memory maps and the like. The last of the appendices is the most recent update, to version 3.3, of PC-DOS. It is organized to show the exact changes applicable to the preceding chapters, though I'll bet these comments could have been very neatly shuffled into those chapters' computer manuscript files. That would require re-typesetting the whole book, rather than one new appendix, though.

There's one aspect of confusion I have in the PC-DOS/MS-DOS world that this book does not clear up. I'd like to know what the ANSI.SYS, EMM.SYS, and such things we put in the CONFIG.SYS file do, and what they need to help them do it. I want to take advantage of all the help I can get.

This is good little reference book, inexpensive, and easy to read. It will help the average user to get more use out of those little system programs that clutter up that first disk we see. It also can remind us of the details of the commands (like COPY or DISKCOPY) that always elude us when it comes time to use it once in a while. If you don't have a copy, hope your library does. (Sybex Inc., Building 100, 2021 Challenger Drive, Alameda, CA 94501, 415/523-8233.)

HARDWARE

Kyocera F1000A Compact Laser Printer

Manufactured by: *Kyocera Unison*
Price: *$2895*
Reviewed by: *Robert D. Athey Jr.*

A huge package (3' x 3' x 3' and 60 pounds) arrived one morning as I was moving my office. It proved to be the Kyocera laser printer, and setting it up proved very easy. There were even diagrams showing the proper way of unwrapping and loading the paper and toner cartridges. It was set up and ready to run in just a few minutes. Multiple fonts are available on special cartridges, but many fonts are already built in.

For about 40 days of regular use, I had the laser printer dedicated to my Z-159 computer for book chapters, letters, bills to my clients, and play with graphics and letter fonts.

The F1000A printer looks pretty much like a generic office machine. The paper tray is off to the right, the power-serial-parallel plugins are in the back, and the output stacks already collated on a shallow angled tray on top of the machine. An indicator panel with lights, letters and diagrams at the upper right of the front displays "ready-to-go" or "wait-there's a problem" information.

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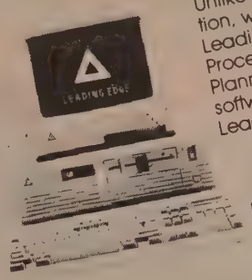

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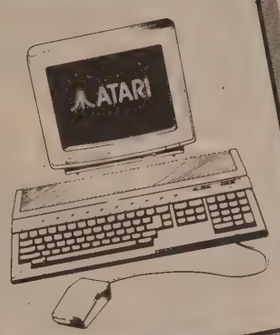

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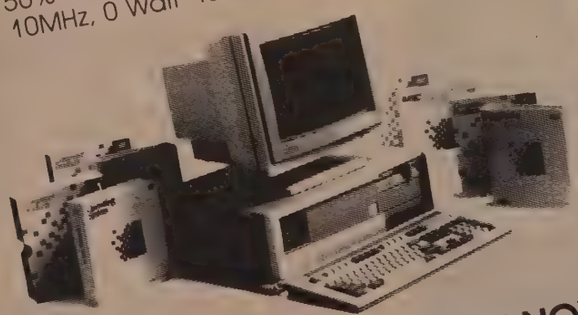

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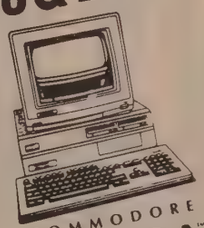

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The papers I tried ran from onion skin to a 60 lb. card stock, and the Kyocera printed well on all but the onion skin. It handled 16 lb. letter stock very well, but the lighter onion skin wrinkled in the heated drier section. Some of the lighter paper stocks took two pages at a time, but primarily when the paper was of mixed types with some rougher than others. I saw no evidence of letter smear (paper slipping on rollers inside) except when I tried to print a folded envelope. Paper jams were rare, too — except when I had mixed paper stocks of varying thicknesses. Jams are easy to clear up, as the counterbalanced top easily lifts to expose the problem. That's a *great* design feature.

One of the nice points of the F1000A is in its internal programming. It carries Courier as its main font, but it has Letter Gothic as its alternate in *WordStar* 4 usages. It emulates the HP LaserJet II in default software, but a simple BASIC language program will have the computer instruct it to emulate any one of five or six others (such as the Epson).

The graphics programs gave the F1000A a workout, too. *PCDraft* had it run up a letterhead for my business in two different sizes — termed "high

The Kyocera F1000A features convenient design and excellent handling of both text and graphics.

density" and "low density" in that program. The reproductions were excellent, with much less dot stepping visible than the pixel reproducing programs I'd seen before (such as the *Print Master* I reviewed two years ago). I tried the graphics segment of *WordStar 2000+* in six different sizes, with excellent reproduction and legibility. I was disappointed in the largest size having the pixel steps on angles and curves, but that's a software problem.

We ran *PC Magazine*'s BENCHMARK program and averaged 11 pages/minute, 457 lines/minute, and 317 characters/second. The literature from Kyocera only promises 10 pages a minute, and how often is it that we get more than promised? I especially appreciated the speed, as I had some book chapters to get out to the publisher, and a couple of long articles for a foreign magazine. The F1000A cranked them out, and was amazingly quiet while it was working. I'd gotten used to my old dot matrix noise, and I had to keep coming back to see if the F1000A was hung up, still working, or finished. The appearance of those printouts was really good, with BOLD boldfacing, good underlines, and italics where needed.

The F1000A performed very well for me. There's another selling point, too. The company will let you rent before you buy, just to try it out. Call Larry Heltsley at Kyocera Unison to check it out. (KYOCERA UNISON INC., 3165 Adeline Street, Berkeley, CA 94703, 415/848-8680.)

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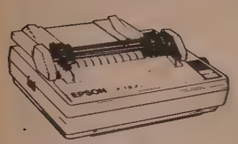

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USER GROUP NETWORK By Mary Eisenhart

We've received quite a few new listings lately, many accompanied by squawks of outrage from those whose listings were dropped when we began our all-new listings in April. "Why did this happen?" they cry.

Well, to briefly recap what we've been saying since late last year, all our old listings, many of which were obsolete, were dropped and February 1 was the deadline for inclusion in the April issue. New listings will be added each month as they arrive, so those who somehow managed to miss previous messages can still send in new updated listings. Please use the form in this issue, or send us a letter, or email us on The WELL. But please remember, the user group listings are not the proper place for *War and Peace*. Please keep your listing to 15 words, or we will edit it to that length. We also welcome additional information about your group or BBS for inclusion in this column, so please let us know what's going on with your group.

Faithful Correspondent **Loyd Cribbs** did. He's from the **San Francisco Personal Computer Users Group**, and he'd like you to know that the special guest at the May meeting will be none other than **Philippe Kahn**, founder and guiding force of Borland International. The meeting's on May 16 at Fort Mason Center (Room 1, Building A). Software sales and SIG meetings start at 7 pm; the meeting begins at 8.

Having been privileged to witness a few of Kahn's memorable appearances, I heartily urge everyone to check this out. You can call Loyd at (415)751-5219 for further information.

Lynzie Flynn of **Lynzie's Motherboard**, which was one of the very first boards listed in these pages and has had a long and distinguished career in the LA area, sends word that she's added some new phone lines. You can now reach the Motherboard 24 hours a day at five local numbers:(213)650-0519 for West Hollywood, (213)659-1982 for West LA, (818)508-6482 and (818)989-3875 in the San Fernando Valley, and, for the 9600-baud-inclined, (213)650-6172. The board offers matching, chat, a large download library, many public boards, email, and offline social events.

Still with us, despite the hiatus in its listing's appearance, is the **Earth-Rite BBS**, (415)651-9496. Sysop **R.E. McCain** says, "While we are perhaps not in the forefront of of those Bay Area BBSes offering gimmicks such as graphics, sound, and color, we offer a solid forum for those interested in New Age, Eastern, and Pagan philosophies and religions. We have never attempted to be a software exchange; we offer food for the mind rather than grist for the hacker."

Earth-Rite operates 24 hours a day at 300/1200 baud, 8-N-1.

On the back of a chartreuse flyer for **Jonathan Richman and the Modern Lovers** comes a listing for the **Planet Zed BBS** at (213)434-2933. Somewhere in all that chartreuse the sysop seems to have omitted his/her name, but the board is a music oriented BBS for all computer types, with IBM compatible downloads. It offers several conferences, including record reviews and coming events. It operates 24 hours a day at 300/1200/2400 baud, 8-N-1.

If you happen to be an owner of **Televideo** or **Timex/Sinclair** equipment, you'll be glad to hear about the **Grey Matter BBS**, which offers support for both product lines. Sysop **Ed Grey** invites your calls at (213)971-6260, 300/1200/2400, 24 hours.

Also on the support front, **Everex Systems Inc.** has created its own BBS to help programmers write software to take advantage of its graphics features updates of drivers, games, source code, and more; it's open to all. **Gary Lorensen** of Everex, who tells us all this, invites you to call the board any time: (415)683-2924, 8-N-1, 300/1200/2400.

The more conversationally-minded might want to call **The Digital Dungeon** in Santa Barbara. Sysops Jerry Ash and Doug Sanders say "This is an open system, designed to be an open forum for topics such as IBM, Macintosh, protocol, current events, the presidential race, Central America, Creative, and more. There are unique downloads, but this is primarily a conversation system." It, too, operates 24 hours a day at (805)683-2436.

Glenn Della-Monica invites users of **DataEase** database software to attend a meeting of the **DataEase Users Group**, which meets every two months on the third Wednesday. The next meeting is May 18 at Turing Auditorium on the Stanford University campus, 1:30 pm. Alternate meetings are held in San Francisco. If you'd like more information, call **Kermit Carter** at (415)945-7817.

AI enthusiasts, **Kent Byron**'s got good news for you. **The Artificial Intelligence Special Interest Group** is a nationally recognized group studying and developing AI and artificial neural networks. Meetings are on the campus of the University of Santa Clara campus (which, as a graduate of that fine establishment, I can commend as a great place, especially in the springtime. . .), usually on second Thursdays in Engineering 101. There's also a newsletter, and if you call Ken at (408)244-8739, he'll pass along any other information you might need.

Joe Mahoney, president of the **Bay Area AT&T PC Users Group**, sends us word that there are now two monthly meetings, one in the North Bay and one in the South Bay. The North Bay group meets on the first Wednesday of the month at alternating sites in Oakland and San Francisco; call Joe at (415)586-8376 for information, or call the Easy Access BBS at (415)829-6027. South Bay AT&T users might prefer the meetings which take place on second Wednesdays at the AT&T Building, 1090 E. Duane in Sunnyvale. Both meetings are at 6:30 pm.

Dr. C. J. Wallia of the **Bay Area Desktop Publishing Users' Group** invites you to attend one of the group's meetings, which take place Tuesday evenings from 6 to 8 pm at Norman's Restaurant, 3204 College Ave., Berkeley (corner of College and Alcatraz). For further information call (415)848-8200.

And on that cheerful note, I'll close for another month. Keep that mail coming—send the US variety to User Group Network, 5951 Canning Street, Oakland, CA 94609, and email to **microx** on The WELL, (415) 332-6106.

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Terrapin Station. (203) 656-0134. Grateful Dead Board. Sysop: Klaus and Gretchen Bender.

209

Bertha Board. (209) 239-9853. 300/1200/2400 8-N-1 24 hrs. MS-DOS, others. Some emphasis on programming. Up- & downloads. Free. Registration required. Sysop: Kenneth Roach

Silicon Realms. (209) 754-5530. 300/(1200 Soon) 9:30AM to 6:30AM.Formerly Motherload 64. Commodore, PET & Plus/4. Programmers board, Continuing & Short Story boards, FRPG. Sysop: Joe Commodore

213

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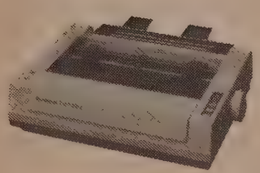

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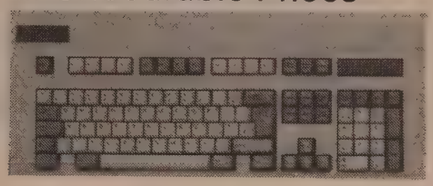

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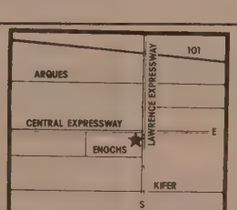

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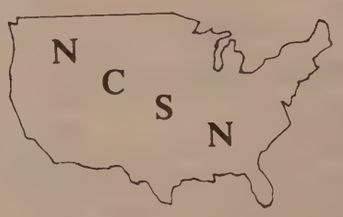

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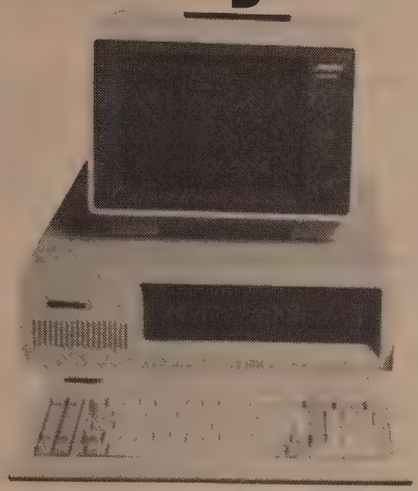

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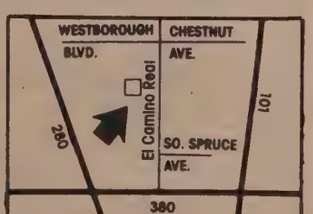

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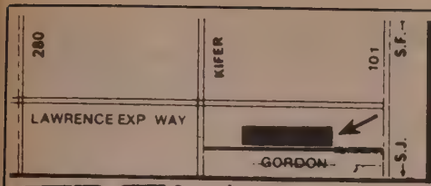

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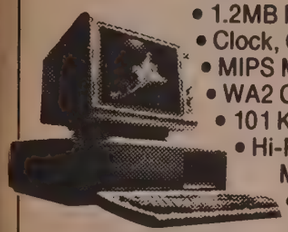

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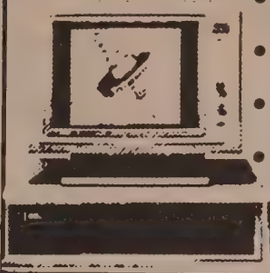

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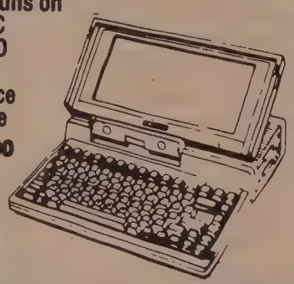

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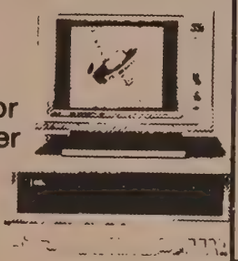

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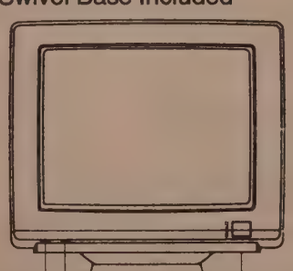

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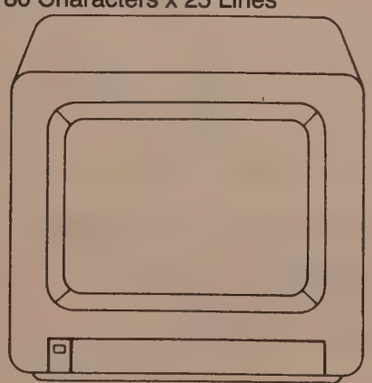

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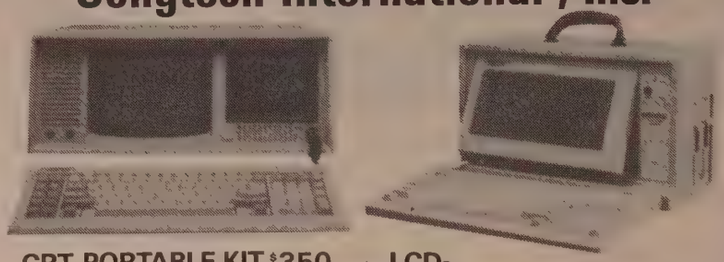

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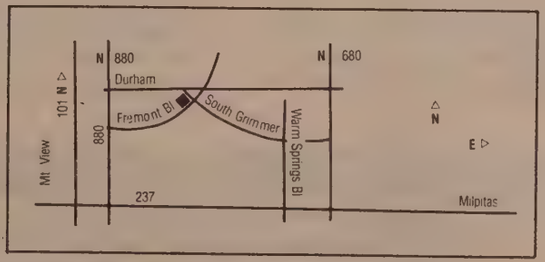

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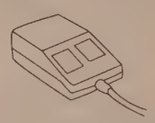

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Hackney's Hideout BBS. (916) 961-1042. 1200/2400 8-N-1. Includes AT&T users conference. Sysop: Rich Hackney.

ASSOCIATIONS

SF Robotics Society. Meetings: 2nd Mon. Homestead Savings, Community Hall, 5757 Geary (at 22nd), SF. Guest speaker, developers' roundtable.

North Bay Users Group (NBUG). Meetings: 2nd Thurs. 7:30-10 PM 201 Maine St., Vallejo, CA. Family Computer Club dedicated to all forms of computing.Determine market opportunities, group research projects. (415) 564-6669.

PC Publishers of San Francisco. Desktop Publishing. Ventura, PC Pagemaker & others. Call (415) 661-9270.

Silicon Valley Computer Society. Contact Kent Stafford (408) 286-2969. Or write to 2464 El Camino Real #190, Santa Clara, CA 95051.

MIDICRUZ Computer and Music Users. Meetings: 1st Thurs., 7:30 PM, 200 Seventh Ave., Suite 225, Santa Cruz, CA 95062. Contact Robert at (408) 476-8464.

Association for Women in Computing. Meetings: 1st Wednesday of each month, 6:30 PM, Stagecoach Restaurant, 44 Montgomery St., San Francisco. Call 655-3110 for information.

North Bay Users Group (NBUG). Meetings: 2nd Thurs., 7:30-10 PM, 201 Maine St., Vallejo, CA. Family Computer Club dedicated to all forms of computing.

Bay Area Desktop Publishing Users Group. Meetings: each Tues. 7 PM Spats Restaurant, 1974 Shattuck Ave., Berkeley, CA.

California Genealogical Society Computer Interest Group. Meetings: 2nd Sat.- odd months Genealogical Society Library, San Francisco.

Computer Associates UG. Meetings: 3rd Wed. Gateway Holiday Inn, San Francisco, CA.

Computers & Law Assoc. Meetings: McGeorge School of Law, 3200 Fifth Ave., Sacramento, CA 95817.

Entrepreneurial Support Group. CEO. Meetings: SASE, P.O. Box 2781, San Rafael, CA.

PC Publishers of San Francisco. Desktop Publishing. Ventura, PC Pagemaker & others. Call (415) 661-9270

Professional Association Of Secretarial Services (PASS). Meetings: 2nd Sat. Oakland. Group for self-employed word processors. Contact Nina Feldman (415) 655-4296.

The Society For Technical Communication. Meetings: 1st Wed. 7:00 PM Room #3, SMUD Facilities, corner of Elkhorn and Don Julio, Sacramento. Devoted to the advancement of the theory and practice of technical communication.

Software Entrepreneur's Forum (SEF). Meetings: 3rd Thurs. 1875 Embarcadero Rd., Palo Alto. Helps individual software developers and startup software companies. Call for complimentary newsletter. (415) 854-7219.

ProTel (Professionals In Telecommunications. Meetings: Monthly. A network organization bringing together people interested in the world of telecommunications. Call (415) 227-5637.

Artificial Intellegence Special Interest Group. Meetings: 2nd Thurs. Engineering 101,Santa Clara University. Independent nationally recognized group studying and developing AI and artificial neural networks. Call Kent Byron (408) 244-8739 for info.

Bay Area Desktop Publishing User's Group. Meetings: Tues. 6-8 PM Norman's Restaurant, 3204 College Ave., Berkeley. (Corner of College and Alcatraz. For more info call Dr. C.J. Wallia at (415) 848-8200.

Business Computerization User Group. Group forming. Write 6938 Buckingham Blvd., Berkeley, CA 94705, or call (415) 848-2080.

Prolog Forum. Meetings: Monthly, 2nd Thursday 7:00 PM, Belmont and various locations. Prolog Forum is a group dedicated to supporting users of the Prolog computer language in artificial intelligence. Call Mark A. Epperson at (415) 594-9981.

ProTel. Next meeting: Wednesday, July 6, 6:30 PM Holiday Inn, 1221 Chess Drive, Foster City. ProTel is a network organization for people interested in telecommunications. "Intl. Voice Mail Systems" is July's topic. Leave a message at (415) 227-5637 for information.

SF Robotics Society. Meetings: 2nd Mon., Homestead Savings, Community Hall, 5757 Geary (at 22nd), SF. Guest speaker, developers' roundtable.

Silicon Valley Computer Society. Contact Kent Stafford, (408) 286-2969. Or write to 2464 El Camino Real #190, Santa Clara, CA 95051.

Valley of the Moon Users Group. Meetings: 2nd Saturdays monthly, 10:00 AM, Moose Lodge, Sonoma. All systems welcome. BBS, 300 BAUD, 24 hours, (707) 996-7922.

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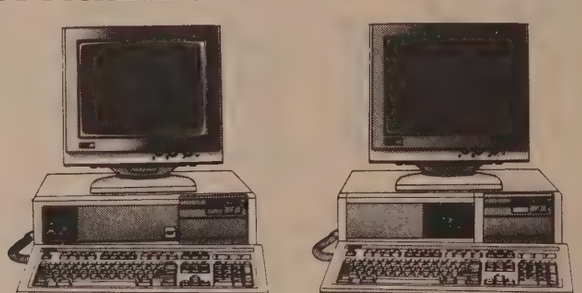

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AUGment - Amiga Users Group of Silicon Valley. Meetings: 2nd Fri. Write to P.O. Box 1863, Fremont CA 94538 for more info.

Bay Area Amiga Developers Group (BADGE). Meetings: 3rd Thurs. 8 PM Turing Auditorium, Stanford University, Stanford, CA. For all Amiga programmers. No membership fee.

Northern California Amiga Club. Meetings: 2nd. Sat. 1:30 PM Business Incubator, 4311 Airport Rd., Redding, CA. $15/yr., monthly newsletter, access to PD disk library, SIG's & support.

SMAUG (Salinas-Monterey Amiga Users Group). Meetings: 3rd Tues. at 7 PM, Seaside Library, 550 Harcourt Ave., Seaside, CA. Write PO 776, Castroville, CA 95012 for call Richard Binsacca at (408) 678-2518.

ACCESS (The Amiga And Commodore Computer Enthusiasts Society). Meetings: 3rd Tues. 7:30 PM Community Room of Homestead Savings & Loan, 999 E. Stanley Blvd., Livermore, CA. Contact Ron Kremkow at (415) 449-1784.

Vallejo AMiga People (VAMP). Meetings: 2nd Tues. 6:30 PM Software 1st, Vallejo Corners Shopping Center. Contact Bill Braun at (707) 554-0263.

Amiga East Bay Info Exchange (AEBIE). Meetings: 2nd Tues. 7 to 9 PM 11185 San Pablo Ave., in El Cerrito. Write to P.O. Box 485, Pinole, CA 94564.

CWEST Bay Area Commodore User Group. Meetings: 3rd Thurs. Embarcadero YMCA, between Mission and Howard. Supports C-64/128, Amiga. Write P.O. Box 146731, San Francisco, CA 94114-6731.

AMSTRAD

North American Amstrad Users Group (NAAUG). National User group. For info send S.A.S.E. to NAAUG, P.O. Box 2178, Ferndale, WA 98240.

APL

APL Bay Area Users' Group. Meetings: 2nd Monday, 6:30 PM, I.P. Associates, 425 Sherman Ave., Suite 200, Palo Alto.

APPLE

Apple Pickers of the Redwood Empire. Meetings: 2nd Sat. 10 AM Santa Rosa JC, Shuhaw Hall, Rm. 1735. Call for sample newsletter. (707) 763-8322.

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Diablo Valley Apple Users. Meetings: 1st & 3rd Fri. 7 PM Willow Creek Ctr., 1026 Mohr Lane, Concord, CA. SIG's meet monthly. Featuring library of pub. domain software & club's DOM's. Newsletter, demos, group buys hard/software.

San Leandro Apple Eaters Users Group, Apple II Users Group. Meetings: 1st Thurs. San Leandro High School, Rm. 213, San Leandro, CA New owners and experienced users welcome. AppleWorks (TAWUG), software & telecommunications SIG's meet monthly. Newsletter.

B.E.A.R. Apple II National Users Group. Meetings: send S.A.S.E. to B.E.A.R., 4719 Meridean Ave. #401,San Jose 95118. Printshop & Appleworks files, monthly newsletter.

Tri Valley Apple II Users Group. Meetings: 1st Thurs. 6:30 PM. Call Esther Farnstrom at (415) 829-3672 or Dan Balsey at (415) 828-6237 for meeting location.

ATARI

ABACUS - Atari Bay Area Computer Users Society. Meetings: 1st Sat. 19th Avenue Diner, 19th & Lincoln Aves., San Francisco, CA. Free meetings open to Atari XL/XE & ST users. With membership $15/yr, comes monthly newsletter, discounts on hardware, etc.

Bay Area Atari Users Group (BAAUG). Meetings: 1st Mon. 7:00 PM Bracher School, corner of Bowers and Chromite, Santa Clara. ST users meet at Bracher on 2nd Tuesdays. 8-bit users meet at H-P, Wolf and Pruneridge, Cupertino. BBS: (408) 247-1257.

AT&T

Bay Area AT&T PC Users Group. Meetings: 1st Wed. 6:30 PM Alternates between Oak. & SF, Call: Joe Mahoney (415) 586-8376. BBS: (415) 829-6027.

Bay Area AT&T PC Users Group. Meetings: 6:30 PM, on 1st Weds. at AT&T, 1000 Bdwy., Oakland City Center @11th; 2nd Weds. at AT&T,1090 E. Duane Ave., Sunnyvale.

Bay Area AT&T PC Users Group - South Bay. Meetings: 2nd Wed. 6:30 PM AT&T Bldg., 1090 E. Duane, Sunnyvale, CA. Call: Joe Lipsig (408) 733-6522. BBS: (408) 462-6329.

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SF/Marin Autocad Users Group. Meetings: 1st Tues. $20/yr membership, newsletter or call Virginia: (415) 777-4025

Sonoma County Auto CAD Users Group. Call (415) 777-9144 for info.

COMMODORE

Campbell Chapter of 64/More Commodore UG. Meetings: 4th Tues. BBS (408) 946-6154.

Commodore Connection Users Group. BBS (415) 458-1005.

Cupertino Chapter of 64/More Commodore UG. Meetings: 3rd. Sat.BBS (408) 946-6154.

Fairfield Commodore User Group. Meetings: 1st & 3rd Mon. Solano County Education Bldg. Write to P.O. Box 2778, Fairfield, CA 94533-9998 for info.

F.U.N.H.U.G. - Fremont, Union City, Newark, Hayward User Group. Meetings: 3rd Thurs. 7:30 PM Newark Public Library, 6300 Civic Terrace Ave., Newark, CA. A user-organized, user-operated user group not affiliated with any computer or software manufacturer or distributer.

North Valley Chapter of 64/More Commodore UG. Meetings: 2nd. Sat. BBS (408) 946-6154.

PLUG (The Plus/4 Users Group). No regular meetings. Over 800 members internationally. Write to P.O. Box 1001, Monterey, CA 93942 for info.

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Silicon Valley Commodore Club. Meetings: 4th Wed. 7 PM Hewlett-Packard, 5301 Stevens Creek at Lawrence & 280. C-64, C-128, & Amiga.

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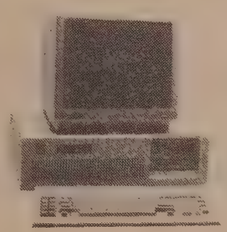

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CWEST Bay Area Commodore User Group. Meetings: 3rd Thurs. Embarcadero YMCA, between Mission and Howard. Supports C-64/128, Amiga. Write P.O. Box 146731, San Francisco, CA 94114-6731.

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dBASE Users Group of Marin & Northbay. Meetings: monthly, call (415) 488-0342 for info. Open membership, beginners through developers.

DATAEASE

Bay Area DataEase Users Group. Meetings alternate between San Francisco and Palo Alto. Contact Kermit Carter at (415) 945-7817 for info.

DYNABYTE

Dynabyte - Tahoe City Dynabyte Users Group. Swap, buy/sell - boards, parts, units. Write to Drawer 2629, Olympic Valley, CA 95730 for info.

EAGLE

Eagle Computer Users Group. Meetings: 2nd Sat. 9:30-12 noon Tandem Computer H.R. Training Rm., N. Tantau Ave., Cupertino.

EASYTRIEVE

Easytrieve Plus Users Group. Next meeting: June 14, Hyatt Oakland. Call Debbie at Pansophic, (415) 573-7100. All users welcome.

EPSON

Epson Users of San Francisco Bay Area. Meetings: 1st Thurs. 7-10 PM Fort Mason, Bldg. C, Rm. 216, San Francisco, CA. For users of Epson (QX, Equity, PX-8). Presentations, support network, newsletter, public domain software.

Epson Users Group of San Francisco, Inc. Meetings: 1st Thurs. 7 PM Fort Mason. Bldg. C, San Francisco, CA. PD-disks, newsletter, BBS, CPM, TPM, ValDocs, MS-DOS.

FIRST PUBLISHER

First Publisher User Group. Members make up 8 1/2 x11 formats for newsletters & tip sheets. $35 annual membership. Contact Raul Ibanez (415) 550- 0785.

FORTH

Forth Interest Group of Silicon Valley. Meetings: 4th Sat. 1 PM Oak Room, at Hewlett Packard, on Pruneridge in Cupertino. Call George Shaw at (415) 276-5953 for info.

Forth Interest Group, North Bay Chapter. Meetings: 2nd Sat. 1 to 5 PM South Berkeley Community Library, corner of Russell and Martin Luther King Junior Way. One block north of Ashby BART station. Contact George Shaw (415) 276-5953.

GAVILAN

Gavilan User Group. Meetings: 2nd Thurs. 7 PM Lockheed Bldg. 162. Cal (408) 379-2774 for info.

IBM AND COMPATIBLES

AI - Expert Systems for Business (ESB). Investigate real business Expert System solutions for PC's. Guest speakers, discussions. Newsletter. $18/yr, $26/yr bus. Call 564-6669 for info.

Diablo Valley CUG. Meetings: 2nd Thurs. 7:30 1331 Concord Ave. For info write: Box 27155, Concord, CA 94527. Or call (415) 932-2413.

IBM Compatible Users Group. Meetings: monthly, call (415) 969-6916 for info 7-10 PM.

IBM & Compatibles Users Group - Ontario Area. Meetings: Call 982-1270 for Info.

Marin-Sonoma PC Users Group (MSPCUG). IBM PC software & talk, business application oriented, official electronic voice of one of most influential groups. Call (415) 927-1216.

Sacramento PC User Group. Meetings: For information call Jackie Janssen at (916) 383-6900.

San Francisco PC Users Group. Monthly meetings, "Blue Notes" magazine BBS (415) 621-2609.

SF PC Jr. Users Group. Meetings: monthly. Lectures & discussions on usage of software & hardware. Software & book library. For more Info, send SASE to 2336 Market St., Suite 20, San Francisco, CA 94114.

Silicon Valley Computer Society. Meetings: 4th Wed. 7:30 PM Oak Room, at Hewlett Packard, on Pruneridge in Cupertino. Call Kent Stafford for info at (408) 286-2969.

Silicon Valley FOG. Meetings: 3rd. Wed. 7:30 PM Saratoga Community Library, 13650 Saratoga Ave.

South Bay AT&T PC UG. Meetings: Call for info. Call (408) 226-0116

South Bay Users Group. Meetings: 2nd Tues. 7:15 Saratoga Library, 13650 Saratoga Ave., STG.

South Bay WordPefect User Group. Meetings: 2nd Thurs. 7 PM Centennial Hall Conven. Ctr., 22292 Foothill Blvd., Hayward, CA. We offer public domain disks, speakers, newsletter.

Valley Computer Club IBM PC Users Group. Meetings: 3rd Wed. 6 PM Xerox Bldg. 475 Oakmead Pky, Sunnyvale, CA. $24/yr member. Monthly VPUG News, access rights to VPUG-SIG Advice on desktop pub. techniques, new products, bugs, etc.

Diablo Valley PC Users Group. Meetings: Walnut Creek, CA. Write: P.O. Box 8040, #117, Walnut Creek, CA 94596.

San Francisco PC Users Group. Meetings: 3rd Monday 8-10 PM, Rm. 1, Bldg. A, Fort Mason Center. Lectures, demos and software sales. New users welcome. Call (415) 221-9166 for recorded info.

San Francisco Computer Society. Meetings: 1st Mon. 7:00 PM. Homestead S&L, 5757 Geary Blvd., San Francisco. MS-DOS machines, Osborne, Kaypro, Morrow. Call Ralph Gallagher 929-0252.

CUE Club. MS-DOS machines. SIGs for other computers. BBS:(209) 239-9853. For more info call (209) 858-4401.

KAYPRO

San Francisco Computer Society. Meetings: 1st Monday, 7:00 PM, Homestead S&L, 5757 Geary Blvd., San Francisco CP\M and DOS machines. No BBS. Call Ralph Gallagher, (415) 929-0252 for information.

MACINTOSH

TI-West Meetings: 2nd Fri. 8 PM Chabot College, Rm. 600, 25555 Hesperian Blvd., Hayward, CA. Access to a variety of pub. domain software, education modules "problem solving" peripheral committee.

Berkeley Macintosh User Group (BMUG). Meetings: every Thurs. 6 PM Physical Sciences Lecture Hall, UC Berkeley Campus. SIG meetings on Mondays, Tuesdays & Wednesdays. Call for this week's topic. (415) 849-9114. BMUG, 1442A Walnut St., #62, Berkeley, CA 94709.

Diablo Valley Apple Users. Meetings: 1st & 3rd Fri. 7 PM Willow Creek Ctr., 1026 Mohr Lane, Concord, CA. SIG's meet monthly. Featuring library of pub. domain software & club's DOM's. Newsletter, demos, group buys hard/software.

MacCruisers — Santa Cruz. Meetings: 2nd Wed. Jade Street Community Ctr. at 45th Ave., Capitola, CA.

AMERICAL GROUP

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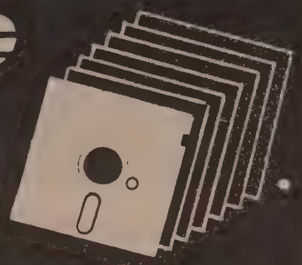

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Tri-Valley Macintosh Users Group (TMUG). Meetings: 4th Wed. 7 PM 4637 Chabot Dr., Rm. 107, Hacienda Business Park, Pleasanton. Newsletter, large P/D library. Contact James (eves) (415) 462-7536.

Christian Macintosh User Group, Silicon Valley Chapter. Meetings: 1st Thurs. San Jose. Newsletter and support available. Contact Rick Thrasher at (408) 437-1913.

Christian Macintosh User Group, San Francisco Chapter. Meetings: 2nd Thurs. San Francisco. Newsletter and support available. Contact Rick Thrasher at (408) 437-1913. Bible Study and DTP SIGS.

East Bay Macintosh Users Group (EBMUG). Meetings: 3rd Tues. West Berkeley Library, 1125 University Ave., Berkeley. Members recieve free PD software. Bring blank disk. Write: P.O Box 7816 Berkeley, CA 94707-0816.

MICROSOFT

Mirosoft Word SIG of the SVCS. Meetings: 4th Mon. 7:30 PM Hewlett—Packard, Oak Room, Pruneridge at Wolfe, Cupertino. Contact Bill West (408) 356-8805 or Hunter Jackson (4080 446- 4097.

Mac Diablo Users Group (MDUG). Meetings: 3rd Tuesday, 7:30 PM, Community Room, Glendale Federal Savings, 3101 E. Crow Canyon Rd., San Ramon. Small, helpful group.

MORROW

BAMDUA (Bay Area Micro Decision Users Assoc.). Meetings: 3rd Tues. 7:30 PM Albany Senior Center,846 Masonic Street (just north of Solano) in Albany, CA. Voice:(415) 534-4257. BBS:(415) 654-3882. P.O. Box 5152 Berkeley CA 94705.

San Francisco Computer Society. Meetings: 1st Mon. 7:00 PM. Homestead S&L, 5757 Geary Blvd., San Francisco. MS-DOS machines, Osborne, Kaypro, Morrow. Call Ralph Gallagher 929-0252.

San Francisco Computer Society. Meetings: 1st Monday, 7:00 PM, Homestead S&L, 5757 Geary Blvd., San Francisco. CP\M and DOS machines. No BBS. Call Ralph Gallagher, (415) 929-0252 for information.

San Francisco Computer Society. Meetings: 1st Monday, 7:00 PM, Homestead S&L, 5757 Geary Blvd., San Francisco. CP\M and DOS machines. No BBS. Call Ralph Gallagher, (415) 929-0252 for information.

NEC

Bay Area NEC/100 Users Group. Meetings: 1st and 3rd Thur. 7:30 PM Room 209C at College of Alameda. For those interested in laptops, especially Kyocera 80C85 type (NEC 8201a, Radio Shack Model 100 or 102. Call (415) 658-1889.

NOVELL

Novell Users Group - Silicon Valley. Meetings: 3rd. Wed. 7 PM 1170 Morse Ave., Sunnyvale, CA.

ORACLE

Northern California Oracle UG. Meetings: Call (408) 738- 8330 for info. meets every 3 months at different Bay Area locations. Newsletter published between meetings.

OSBORNE

San Francisco Computer Society. Meetings: 1st Monday, 7:00 PM, Homestead S&L, 5757 Geary Blvd., San Francisco. CP\M and DOS machines. No BBS. Call Ralph Gallagher, (415) 929-0252 for information.

PARADOX

San Francisco Paradox Users Group. Meetings: 3rd Wednesday, call Jeffrey Edwards Co. for information, (415) 543-6227.

San Francisco Paradox Users Group, South Bay Chapter. Meetings: 3rd Tuesday, call Jeffrey Edwards Co. for information, (415) 543-6227.

PLUS/4

PLUG (The Plus/4 Users Group). No regular meetings. Over 800 members internationally.

TANDY/RADIO SHACK

Tandy 1000 (The Mug). Mail-based user group w/ monthly newsletter. Not for PC jrs. Members communicate through newsletter. $8/yr. fee; checks to: Daniel Tuma, 30 Arjang Ct., Alamo, CA 94507-2041.

BYTE Bandits of America. Meetings: Campbell. Call (408) 379-2774 for info.

Model 100, 102 & 200 Support. Meetings: Int'l support by mail, voice & BBS. Free on-line weekly news letter. Write Club 100 984 Hawthorne Dr., Walnut Creek, CA 94596. Or call (415) 937-5039.

TRS Nybblers. Meetings: 2nd Fri. 8 PM Chabot College, 25555 Hesperian Blvd., Hayward. MS-DOS, CP/M, laptops, Mod 1, 3, 4, Mod 2, 12, 16, 6000. Bud Gallagher (415) 522-5960 or Bruce Jarvis (415) 846-3575.

REVELATION

Bay Area Revelation UG. Meetings: 1st Tues. Call (415) 759-1210.

SANYO

Sanyo PC Hackers. Meetings: 1st Wed. 7 PM Mercury Room, Mercury Savings & Loan, 99 El Camino Real, Menlo Park.

SOLOMON

Solomon User Group of Silicon Valley. Meetings: For info contact Grihalva Associates, 39899 Balentine Dr., Suite 175, Newark CA 94560.

San Francisco Solomon III Users Group. Meetings: last Wed.,odd months 6-9 PM Price Waterhouse, 555 California St. 36th Fl., San Francisco. Annual membership - $50; corp. membership - $75.

S—100

S—100 Business Users Group. Meetings: 4th Tues. 7:30 PM Santa Clara Univ., Rm. 101, Bannan Engineering Bldg. CP/M & MS-DOS libraries. BBS: (408) 262-5150, 8-N-1,2400/1200/300.

TEXAS INSTRUMENTS

Brea 99'ers Users Group. Meetings: 1st Mon. 7:30 PM Mercury Savings, La Habra, CA.

Thousand Oaks Personal Computer Club (TOPCC). Meetings: monthly. Call: (714) 686-0336.

TIMEX/SINCLAIR

Timex/Sinclair Users of Silicon Valley (GUTS/SV). Meetings: each Sat. 9 AM Stanford Univ., Jordan Hall (quadrangle), Math Bldg. RM 380C. SW library & newsletter. For topic check PDSE BBS in Sunnyvale (408) 735-7390, 300/1200, 8-N-1, 24 hrs.

VENTURA PUBLISHER

VPUG (Ventura Publisher User Group). Meetings: 3rd. Mon. 6:30 PM Fort Mason, Bldg. A., Rm. 5 San Francisco, CA.

Ventura Desktop Publishing Users Group. Meetings: 1st Tuesday, 7-9:00 PM, 1650 S. Amphlett Blvd., San Mateo. Newly formed group. Call Eleanor Church at (415) 726-3181, or Pam Sheble att (415) 574-2003 for information.

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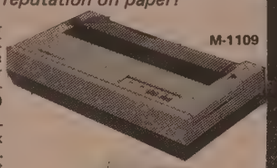
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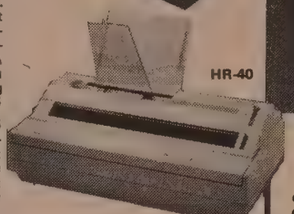
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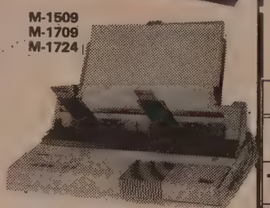
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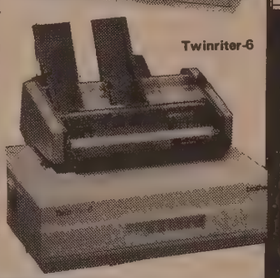
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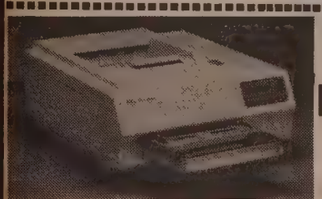

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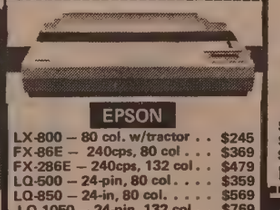

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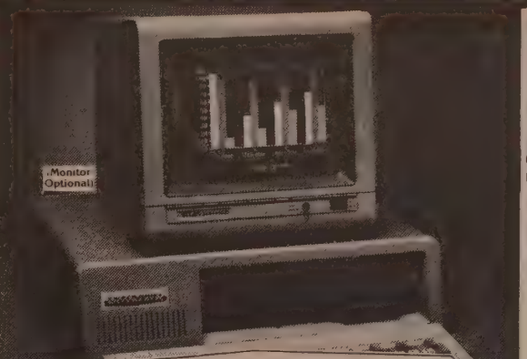

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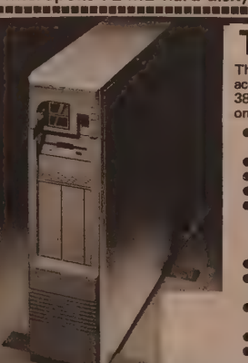

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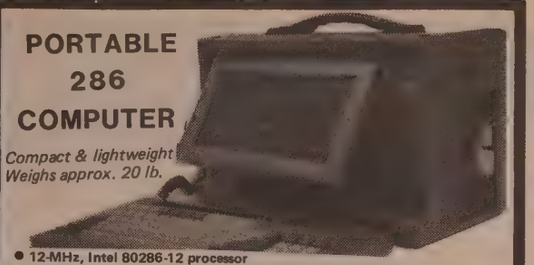

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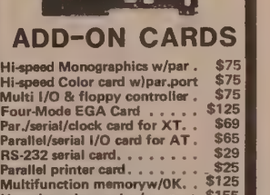

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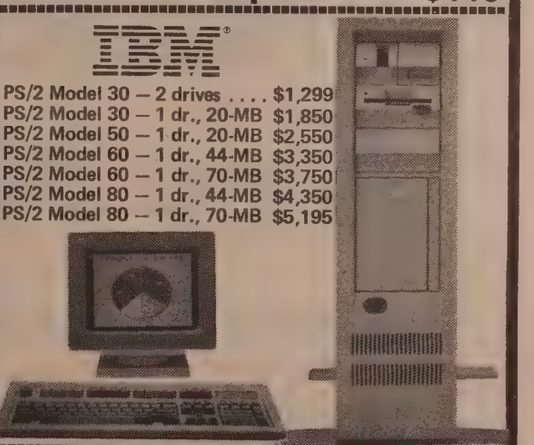

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tions asked. Worse yet: they shut down an entire electronic service like the WELL because there is a "drugs" conference online. Such are the dangers if electronic free speech isn't insured.

Stifle It

As corporations take on the medium of electronic communications in a more comprehensive way, they will come to acknowledge that their words, their files, indeed their commerce, are at great risk; ACA 36 will provide protection for that risk.

If this bill is killed, it could kill a great deal of regional, national and international commerce for California companies. What corporation is going to risk the "bottom line" in an atmosphere of uncertainty? I'll tell you how many: zero.

John Coate, who helps run the Whole Earth 'Lectronic Link says: "I agree with Assemblywoman Gwen Moore when she says that ACA 36 would pave the way for the development of a vital and diverse industry in California by granting electronic communicators' rights. California must stay on the cutting edge of technology and the way technology interacts and is used by the people. Communications in research, education and the community is the way we build wealth and community, and by insuring freedom for electronic speech we can cost-effectively create wealth and well-being for the people of the state without putting out a lot of extra tax dollars."

Coate told me that several of the corporations and organizations now using the WELL express concern over the issues addressed by ACA 36. "The best I can tell them is that we insure their privacy from unauthorized access, but when it comes to insuring any more than that, well, I can't give them much. ACA 36 would go a long way in giving these groups the assurances they are looking for."

As corporations take on the medium of electronic communications in a more comprehensive way, they will come to acknowledge that their words, their files, indeed their commerce, are at great risk; ACA 36 will provide protection against that risk.

And what of intellectual and personal "commerce"—the commerce of ideas? With the potential threat of the government being able to mandate how and where and what they can say electronically, and that anything stored online, might be fair game under some kind of "zero tolerance" campaign, how many people are going to freely and willingly, open up and contribute to the electronic landscape? Rather than live in a constant state of being at risk, a great many people will choose to remain silent, their contributions forever mute.

Let Freedom Ring

Those like the CDAA would have you believe that the freedoms granted by ACA 36 are "unnecessary" because such freedoms already exist. That reasoning reminds me of a *West 57th St.* TV segment where the Soviet media darling Vladimir Pozner was interviewed. During the interview he asserted that the Soviet Union, in its constitution, guarantees its people freedom. When asked if it is the same freedom granted by the U.S. constitution, he said, "It guarantees the Soviet definition of freedom."

If the "freedom" of electronic speech already exists, I want to know: whose definition are we using?

Like I said at the top of this column: this is either an epitaph or a campaign platform. If ACA 36 has been defeated by now, lay flowers at the grave of your electronic freedom, and install a floor safe where you lock up your hard disk every night just in case someone comes for it in the wee hours of the morning.

If the bill is on the ballot, watch for "Say No on ACA 36" campaign, take down the phone number, call them and ask about definitions. Then give them yours. And strike a blow for freedom. □

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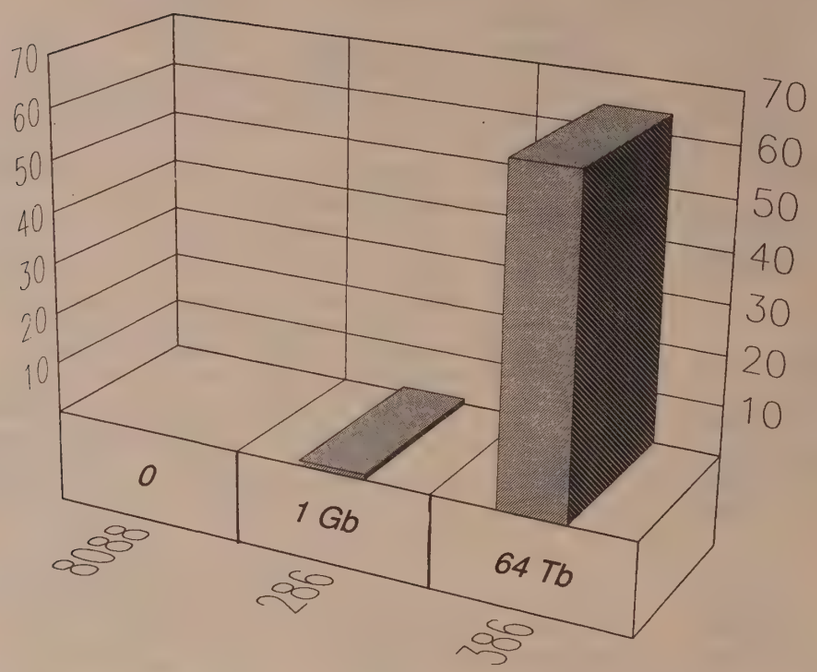
FIGURE 7

Virtual Memory of the 8088, 286, and 386 computers

(In Terabytes)



IS AN AT CLONE FOR YOU? *continued from page 74*

record, a complicated spreadsheet could be calculated, and the user could be writing a letter with the word processor, all at the same time. With multitasking, if several programs are simultaneously being operated, the computer does a piece of one ... stops, does a piece of the next ... stops, does a piece of the next job, and so forth. Because this process takes place very quickly, it looks to the user as if the various tasks happen at the same time. On the other hand, multiprocessing or concurrent processing (which is found on mainframe computers) means that two or more tasks are done exactly at the same time. There's no stopping and switching between tasks. This takes specially designed or parallel processors which work at the same time.

Multitasking in its present form is not very popular. This is due to the fact that the rather limited and awkward operating system (Microsoft's MS-DOS) is designed to be a single task/stand-alone operating system. It does not lend itself well to multitasking. With OS/2, however, the 286 machines have a real advantage over the 8088-based machines because they operate faster and their chips are designed to do multitasking more efficiently. The 386 computers will really shine in this application because the 386 chip is specially designed to do multitasking.

Modes

Each generation of computer has the capability of supporting different "modes" of operation. These modes are referred to as "real mode," "protected mode" and "virtual 8086 mode."

Real Mode

The 8088/86-based computer can operate in just one mode; this is referred to as real mode. In real mode the computer can access 640K of physical memory. MS-DOS exploits real mode, and the overwhelming majority of application software is written for this mode.

Protected Mode

The 286-based computer can operate in real mode as well as in an added mode of operation called 286 protected mode. This protected mode allows for the access of 16 megabytes of physical memory and 1 gigabyte of virtual memory. It also allows the ability to do multitasking more efficiently. When doing multitasking, the individual tasks are protected from each other so that if one locks up, it does not effect the other programs, hence the name "protected" mode. (When doing multitasking in real mode, if one program locks up, the entire computer would lock up, causing you to lose all your work.) Presently, the problem with protected mode is that all existing software must be rewritten to take advantage of it. Microsoft's OS/2 has been designed to take advantage of the protected mode; however, few applications programs are yet available.

Virtual 8086 Mode

The 386 computer can operate in real mode and in an enhanced 386 protected mode which allows the access of 4 gigabytes of physical memory and 64 terabytes of virtual memory. The 386 also supports one added mode called virtual 8086 mode. Under this mode, you can create many independently operating "*virtual 8086 machines*" on your one computer. In other words you can set up separate virtual (or imaginary) computers each working within a different window on the same computer. You can then load an array of programs written for the 8088 computer into each virtual machine and switch from one program to the other. The advantage of virtual 86 mode is that all previous software can be operated and you can also do efficient multitasking. **Windows 386** by **Microsoft** is a program which takes advantage of virtual mode and allows the creation of multiple virtual machines. □

Edwin Rutsch is the author of three books: IBM XT Clone Buyers Guide and Handbook *($19.95, 375 p.)*, IBM AT Clone Buyers Guide and Handbook *($24.95, 416 p.), and* 386 Computer Buyers Guide and Handbook *($29.95, 464p.). He also holds seminars on how to purchase and assemble a computer. Books are available from bookstores or by mail from Modular Information Systems, 431 Ashbury Street, San Francisco, CA 94117, (415) 552-8648. For mail orders add 6.5% sales tax plus $3.50 shipping and handling.*

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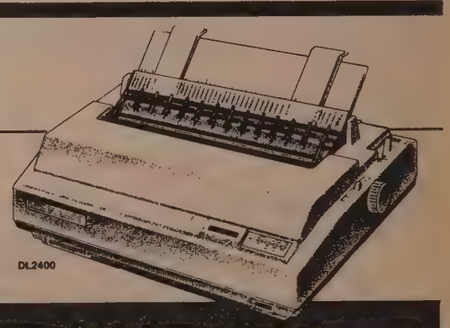

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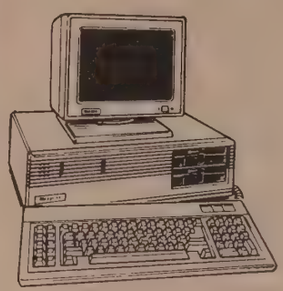

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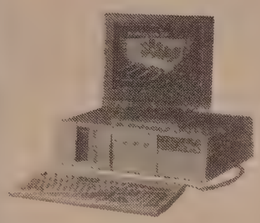

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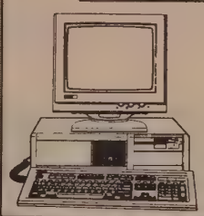

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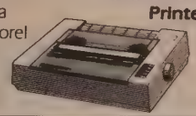

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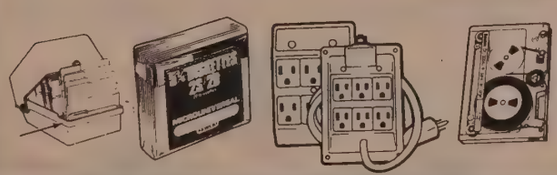

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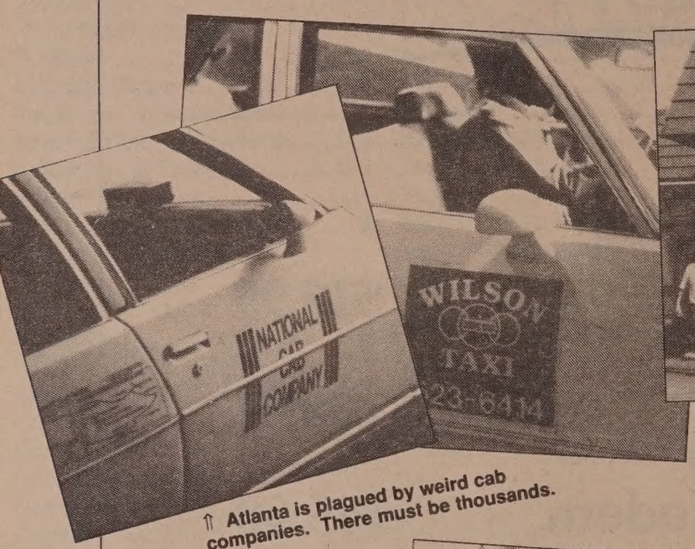
DVORAK'S LAST COLUMN

COMDEX—SPRING '88

Dvorak's Atlanta Photo Album

Atlanta, Georgia was the site of the 1988 Spring COMDEX. Atlanta is a beautiful and exciting spot, although you'd never know it from the pictures I took. Next year they're moving the show to grimy Chicago. These are photos and notes from my recent visit to the COMDEX show.

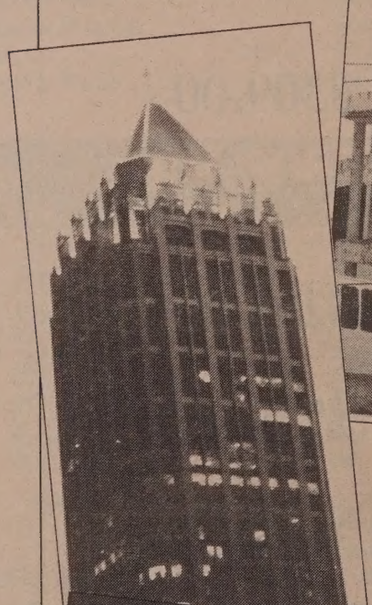


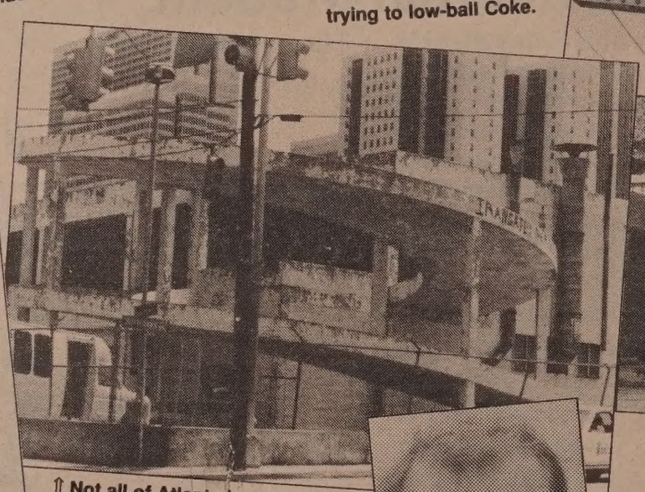
⇑ Atlanta is plagued by weird cab companies. There must be thousands.

⇑ Atlanta is the International Headquarters for Coca-Cola. Once you leave the city limits you can find banks of Pepsi machines trying to low-ball Coke.

⇑ They like to keep tabs on everything in Atlanta, including a minute-by-minute population count. Perhaps some money for new bulbs should be spent.

⇐ Atlanta has good food although it mystifies me what they do to it sometimes.

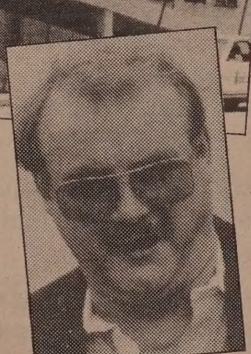




⇑ Not all of Atlanta is pretty.

⇐ If you drive out on Peachtree you run into this building from *Ghostbusters*. Sorry. My mistake, it's the new IBM building.

⇑ Good bar-b-que is where you find it.



⇑ I ran into science fiction author and columnist Jerry Pournelle at a Toshiba hospitality party. He immediately began arguing with me about something.

⇑ Unknown to me my fly was open when I took this photo of the *PC Magazine* staff who were hanging around outside the Toshiba affair.

⇑ Few Georgians have ever seen an escalator, and at COMDEX they spent all their time riding up and down on them.

⇐ I caught the last few minutes of the Tall Persons Competition, won by the ever-photogenic New York Times Columnist Peter Lewis, who showed up Brian Roemmele and his girlfriend Laura. He won a free ticket to a Braves game as first prize. Brian and Laura got the second and third awards, a season pass to the Braves games.

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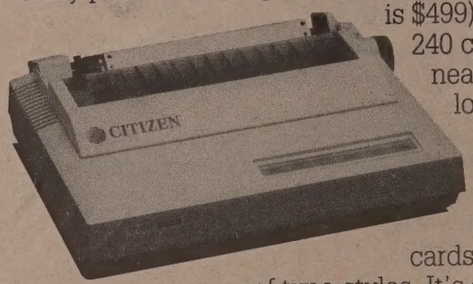

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